Harnessing Technology: Annual sector survey of Work-based Learning 2008–09
Final Report

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Introduction

Much has been achieved and much has changed in the education and skills system and in the ways learners of all ages use technology since the publication of the *Harnessing Technology* strategy in 2005. As a result, in July 2008 Becta revised the strategy and produced the *Harnessing Technology: Next Generation Learning* strategy for 2008–14. The new strategy seeks to build on the technological infrastructure and strategic planning that has been put in place in order to develop an e-confident education and skills system where:

- learners can access learning resources and support at any time and from anywhere
- technology-supported learning helps build higher-order skills
- technology helps deliver more personalised services to learners
- all learners gain value, including disadvantaged and vulnerable groups.

The April 2008 *Technology Strategy for Further Education, Skills and Regeneration* sets out 11 actions under four themes to ensure the confident use of technology in the sector. These include:

- a systematic national professional development programme and regional support for workforce and leaders
- a supported network of business leaders who will be advocates for flexible and online delivery
- learning opportunities through technology for the 'digitally excluded', disadvantaged learners and small businesses
- a campaign (*Next Generation Learning*) to raise awareness of, and increase demand for, learning through technology
- a system-wide national digital infrastructure including interoperable business and management systems
- aggregation of procurement leading to better value for money, with cashable savings
- a focus on effective use of high-quality content to drive up the standards of digital resources and increase their range and accessibility
- reviewing the delivery chain for technology investment
- considering how the effective use of technology might best be embedded in any revision to the inspection process
- initial scoping to see if the incentives are right for delivering technology-based services
- professional workforce standards for the skills needed by practitioners in the effective use of learning technology and for efficient business processes.

A number of activities have been undertaken to support the work-based learning (WBL) sector specifically. These include:

- **Learning Innovation Grant** (LIG) This has provided capital funding to help providers exploit technology in learning and management to improve learners' experiences and lead to improved retention, motivation and achievement. The LIG is now in its fourth phase and has supported over 400 organisations.
- **E-Guides training programme** This aims to provide knowledge and skills to WBL practitioners so that they are able to support colleagues in their use of technology.
- **Connect** and **Realise** These are leadership and e-learning programmes which address the importance of e-learning as a strategic issue for leaders and managers in the WBL sector.
- **JISC Regional Support Centres** (RSCs) These work directly with learning providers to ensure that the opportunities created by the development of new learning technologies can be realised. They offer a wide range of support on topics such as senior management strategies, staff development and learning resources
- **Free access to high-quality e-learning National Learning Network (NLN) materials** These have been developed through the post-16 e-learning programme.

Harnessing Technology: Next Generation Learning includes a performance framework to measure the effectiveness of the strategy. This includes a range of system-wide outcomes presented under five themes (Table 1).

Table 1: Harnessing Technology: Next Generation Learning system outcomes

Improved personalised learning experiences	• Learners exercise choice among flexible learning options. • Tailored and responsive assessment addresses learners' needs. • Engaging learning experiences support deep and higher-order learning.
Confident system leadership and innovation	• Education leaders understand how technology supports their priorities. • Partners buy into strategic vision and actively support implementation. • Innovation is encouraged and good practice shared and adopted.
Effective technology-confident providers	• Providers achieve well on e-maturity criteria. • Provider capability supports home and extended learning. • Technology-based tools and resources support effective teaching.
Engaged and empowered learners	• Learner entitlement is met, with all vulnerable groups supported. • Technology adds value to family and informal learning. • Learners use technology confidently and safely to support their learning.
Enabling infrastructure and processes	• Systems for learner services are fully integrated • High-quality, tailored resources are available to all learners. • Infrastructure is designed for efficiency and sustainability.

The Becta 2008 *Harnessing Technology Review* reports on progress against each of these themes and suggests that:

Over the last few years providers in all sectors have made steady progress in developing their ability to make strategic and effective use of technology to improve outcomes for learners …

Indications suggest that up to 35 per cent of work-based learning providers can be classified as e-enabled, but around one quarter of providers are unlikely to be realising the benefits of technology-supported learning.

Research objectives

This research aims to support Becta's continuing work to monitor the implementation of the *Harnessing Technology* strategy and its continued refinement. Specifically it aims to:

- gather information on the use made of technology by WBL providers and staff
- identify and analyse issues affecting the use of technology by WBL providers
- identify national trends and issues for WBL providers in their use of technology
- relate the findings to priorities identified in the revised *Harnessing Technology* strategy and the FE and Skills Implementation Plan.

The research has been commissioned alongside other research in the further education (FE), adult and community learning (ACL) and Offender Learning and Skills Service (OLASS) sectors with the intention of developing a methodology for common measurement across the whole FE and skills sector.

Report structure

In the remainder of the report, we present the findings of our combined research and, where appropriate, present them alongside the *Harnessing Technology: Next Generation Learning* system outcomes themes. Where relevant, we also report comparisons with previous surveys.

However, caution should be taken when comparing small percentage changes between years. The size of the 2008 sample means the provider analysis has a margin of error of approximately ±7% and the practitioner analysis has one of approximately ±3%. These margins of error are larger where analysis is made of sub-groups of respondents.

The report has seven further sections that review:

- management, planning and partnerships – aligns with the confident system leadership and innovation theme within the strategy
- provider technology infrastructure and learning resources – aligns with the enabling infrastructure and processes theme in the strategy

- the use of technology for learner support, learning and teaching – aligns with the improved personalised learning experiences and engaged and empowered learners themes
- practitioners' skills and e-maturity – aligns with the effective technology-confident providers theme
- the impact and challenges associated with the introduction of technology
- the research conclusions and *Harnessing Technology: Next Generation Learning* system outcome baselines.

Unless specified otherwise, all the tables show percentages-based on the number of responses reported at the bottom of each column.

Management, planning and partnerships

Introduction

The revised *Harnessing Technology* strategy aims to ensure that there is confident system leadership and innovation. Achievement of this will be illustrated through three outcomes:

- Education leaders understand how technology supports their priorities.
- Partners buy into the strategic vision and actively support implementation.
- Innovation is encouraged, and good practice is shared and adopted.

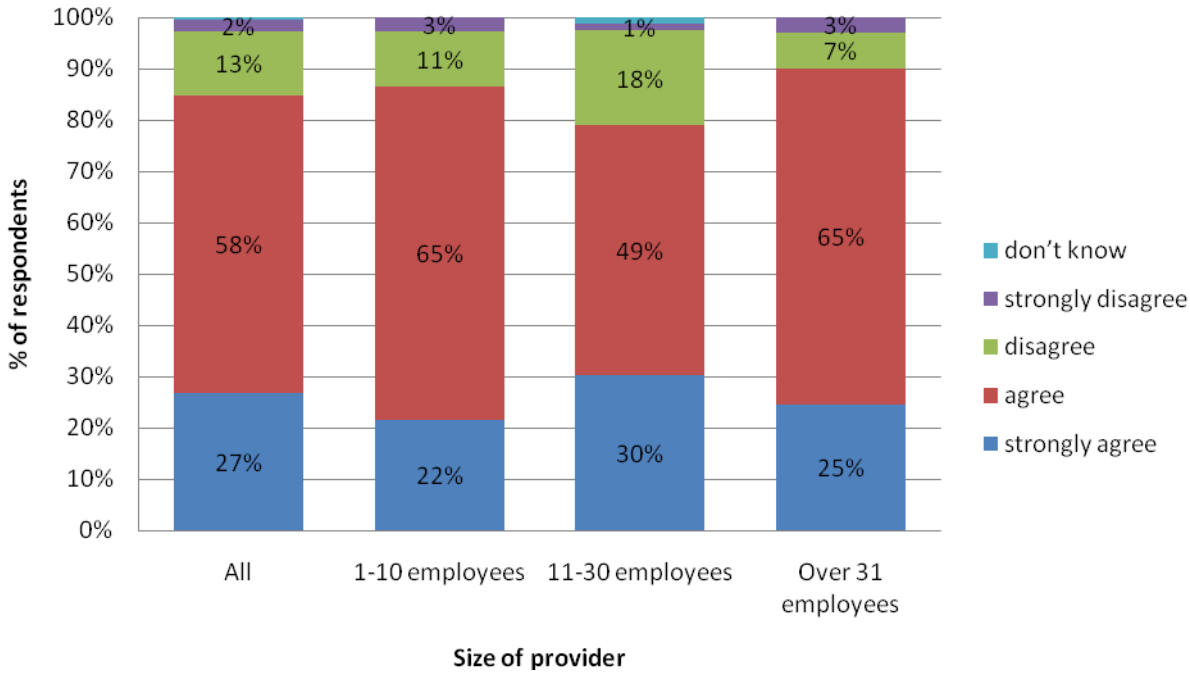
In this section, we examine how close the WBL sector is to these outcomes, by examining:

- views on the approach, knowledge and skills of WBL provider managers to the use of technology
- the level of technology planning
- the effectiveness of partnership working.

Senior management's approach, knowledge and skills

Most WBL providers (84%) believe that their senior management team has sufficient skills and knowledge to make effective use of technology to support WBL. However, by implication, the survey suggests that 16% of senior management teams do not have appropriate skills and knowledge. This is a situation similar to last year's. Medium-sized providers (employing 11–30 people managing, delivering or supporting WBL) appear to be less confident that senior management teams have appropriate skills.

Figure 1: The extent to which senior management teams have the appropriate knowledge and skills to make effective use of technology to support work-based learning



In the majority of providers, this knowledge and skill is complemented by a clear management oversight of technology implementation:

- nearly one third of providers (30%) report clear managerial accountability for delivering and updating a coherent technology strategy
- just under half (45%) report clear managerial accountability for technology issues.

There is less clear management oversight in around a quarter of providers (26%), who are less likely to agree that their senior managers have appropriate knowledge and skills to make effective use of technology:

- nearly one fifth (19%) report that technology management is devolved with no overall coherence across the organisation, and more than one third of these providers (35%) believe that their senior managers do not have appropriate skills
- 7% of providers report no explicit managerial accountability for technology issues, and nearly one quarter of these (23%) believe that senior managers do not have appropriate skills.

Strategic planning

The survey investigated the extent and coverage of written strategies relating to six aspects of providers' use of technology. Just over half of providers (51%) report having a written strategy (either as part of a wider strategy or on its own) covering all six aspects. Just 8% of providers did not have any written strategies.

Table 2: Coverage of organisations' written strategies (either as part of wider strategies or on their own)

Coverage of written plan	% of respondents 2008	2007
Ensure technology-related learning environments are safe and secure	88%	85%
Ensure learners and staff receive appropriate technical support when using technology	83%	86%
Use ICT (information and communication technology) to manage and administer WBL more efficiently	76%	78%
Access, develop and use ICT-based WBL resources	73%	72%
Ensure your use of technology is financially sustainable	73%	72%
Train staff to support and deliver e-learning	68%	68%
All six aspects	51%	51%
Base: All respondents	**183**	**160**

This shows very little change from last year, but confirms last year's conclusions that more providers:

- now have written plans that cover the use of technology to manage and administer WBL more efficiently than in 2005 (53%)
- now have a written strategy that covers how they are going to train their staff to support and deliver e-learning than in 2006 (50%).

Partnership working

One of the strategic outcomes identified by the revised *Harnessing Technology* strategy under the theme of confident system leadership and innovation is that 'partners buy into strategic vision and actively support implementation'.

Our survey found that a high proportion of providers have worked in partnership with other organisations to help harness technology. Two thirds of providers (66%) have worked with technology suppliers and half (50%) have worked with other WBL providers. Around two fifths have worked with employers (39%) or industry bodies (44%).

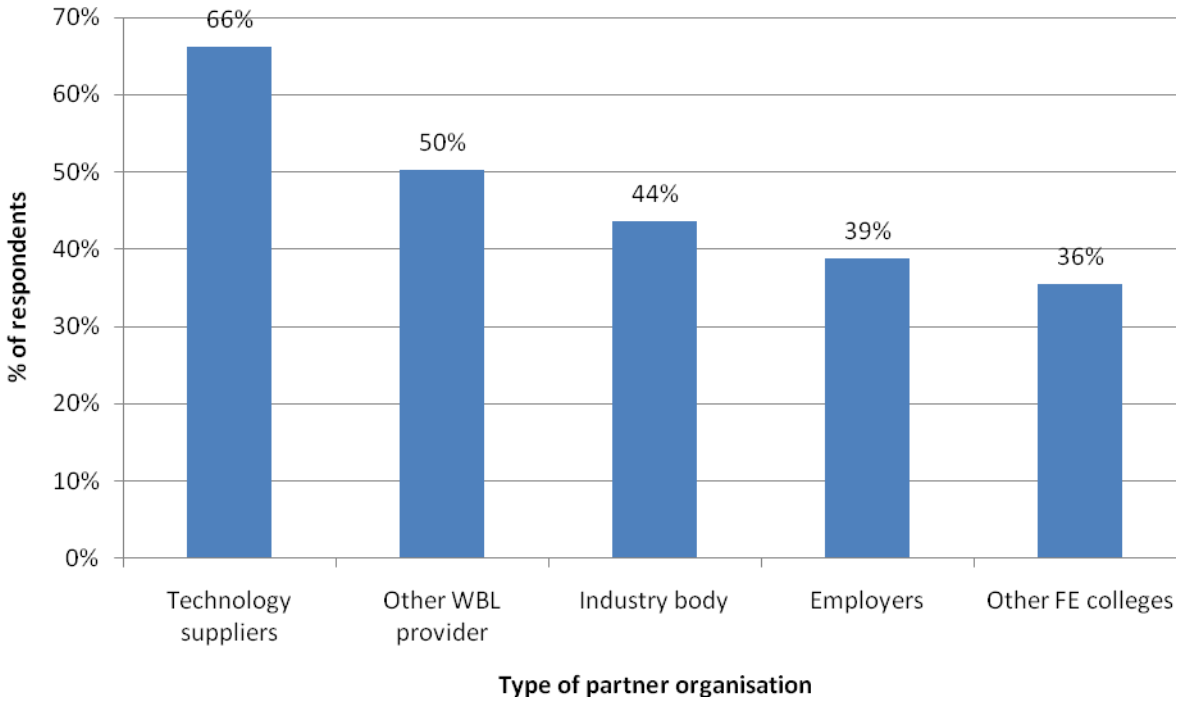
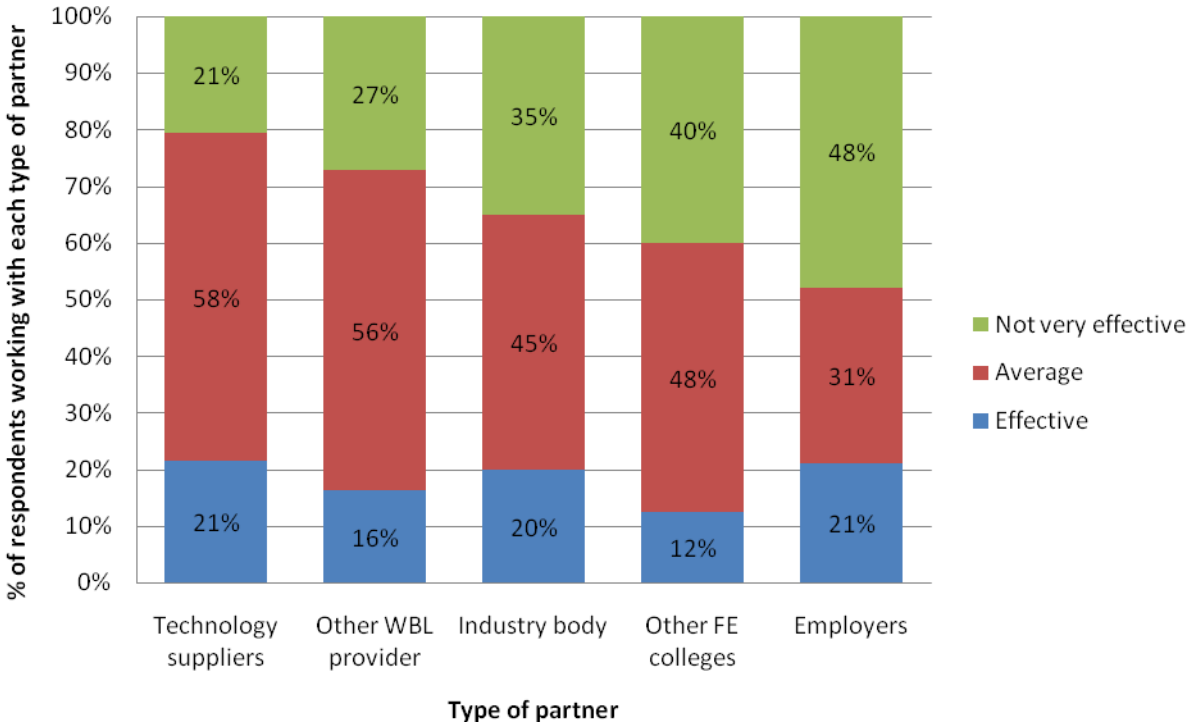


Figure 2: Organisations that providers have worked with to help harness technology

Specifically, 40% of providers have worked with partners to develop computer-based learning resources. This is a similar proportion to last year (39%) and includes software providers (18%), other WBL providers (17%), FE colleges (14%), industry bodies (11%) or employers (8%).

However, few providers have found partnerships effective in helping to harness technology generally. They have discovered that working with employers, industry bodies and other FE Colleges has been least effective. In addition, one fifth of providers (21%) working with technology suppliers report that this has not been very effective and 58% report it as being average. This suggests that providers are building partnerships and working together but that these partnerships are not yet being very effective.

Figure 3: How effective providers have found partnership working with various



organisations in helping them harness technology

Conclusions

The survey shows that the majority of providers believe they have senior managers with the skills and knowledge to make effective use of technology and that most have clear management and planning processes for the use and implementation of technology. However, there is a small core of providers in which this is not the case, and the survey suggests that the size of this minority has not changed over the last few years.

Many providers are working in partnership with a wide range of other organisations including other WBL providers, but few have found these effective in helping them to harness technology. We do not know the reasons for this lack of effectiveness, but our previous research has highlighted some frustration with technology suppliers in particular.

Future research could investigate:

- why a minority of providers have not developed the skills, knowledge and management processes to effectively manage technology
- why partnership working does not appear to be effective in helping to harness technology.

Infrastructure and learning resources

Introduction

To effectively harness technology, providers need an enabling infrastructure which ensures that:

- high-quality, tailored resources are available to all learners
- the infrastructure is designed for efficiency and sustainability
- systems for learner services are fully integrated.

In this section, we present the infrastructure and resources that are being used by WBL providers and give an indication of their impact.

Technology infrastructure

Work-based learning is primarily focused on learning in the workplace. Despite this, nearly all providers (95%) have computers on their premises for work-based learners' use and 84% have computers with fast internet connections.

Based on the 165 providers that have computers on their premises available for work-based learners to use and which provided details of the number of computers they have available, we estimate that work-based learning providers have:

- a median average of 26 computers on site per provider This is similar to previous years (22 in 2007 and 24 in 2006). The number of computers varies considerably, with one provider reporting they have 2,000 computers available while another reported just two. This results in a mean average of 86 computers per provider.

- a median average of 7.2 work-based learners for every on-site computer This result is slightly higher than previous years (6.7 in 2007 and 6.5 in 2006). A small number of providers reported more than one computer for every work-based learner. This ratio is likely to be reported by FE colleges where all the computers in the college are available to any student. The largest ratio reported is 350 learners to every computer. The mean average of learners per computer is 19.

WBL providers have a range of other technology. Around two thirds have data projectors (69%) and digital cameras (61%), while over half (54%) have electronic whiteboards. The latter represents an increase since 2005, when only 30% reported having whiteboards. However, FE colleges are much more likely to have data projectors (83%) and electronic whiteboards (81%) than other types of providers. The use of mobile devices for learning has also continued to increase to nearly one third (31%).

Table 3: The types of technology that organisations use

Technology used for work-based learning	% of respondents*			
	2008	2007	2006	2005
Computers at your premises for work-based learners' use	95%	93%	92%	90%
Computers at your premises for learners' use with a fast internet connection	84%	82%	85%	75%
Data projectors	69%	68%	Not asked	Not asked
Digital cameras for work-based learners' use	61%	60%	Not asked	Not asked
Electronic whiteboards	54%	56%	36%	30%
Video cameras for work-based learners' use	37%	34%	Not asked	Not asked
Laptops for loan to learners in the workplace	34%	32%	32%	49%
Mobile devices that are used for learning, such as PDAs or mobile phones	31%	27%	15%	Not asked
Digital voice recorders	8%	Not asked	Not asked	Not asked
Video-conferencing facilities	6%	9%	6%	8%
Student response/voting systems	3%	Not asked	Not asked	Not asked
Base: All respondents	**183**	**160**	**171**	**271**

*Multiple responses.

This technology is supported by a range of infrastructure. Over two thirds of providers (70%) have a network that is remotely accessible by staff, although only just over one third (38%) have a remotely accessible network for learners. The number of providers with different types of infrastructure has remained unchanged compared to last year, although the proportion of WBL providers offering remote access to learners, with virtual learning environments and dedicated websites to support learners, has increased since 2005.

Table 4: The types of infrastructure that organisations have

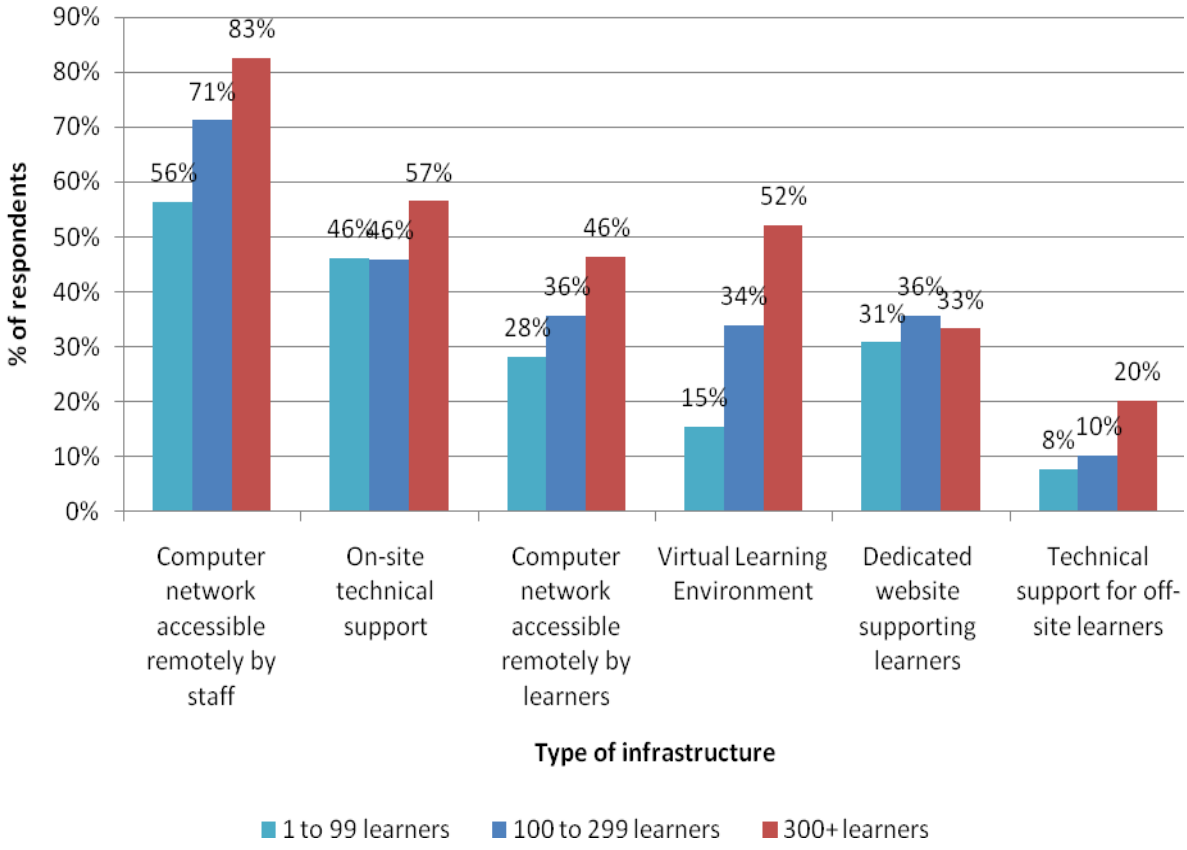
Infrastructure used for work-based learning	% of respondents*			
	2008	2007	2006	2005
A computer network accessible remotely by staff	70%	69%	Not asked	Not asked
On-site technical support for learners	50%	51%	56%	Not asked
A computer network accessible remotely by learners	38%	37%	31%	27%

A virtual learning environment	36%	36%	26%	25%
A dedicated website to support learners	32%	33%	28%	19%
Technical support for learners off site	14%	11%	Not asked	Not asked
Base: All respondents	**183**	**160**	**171**	**271**

*Multiple responses.

Unsurprisingly providers with clear managerial accountability are more likely to have this infrastructure in place. There are also differences between sizes and types of provider. With the exception of a dedicated website, larger providers (with more than 300 learners last month) were more likely to have each of the types of infrastructure in place.

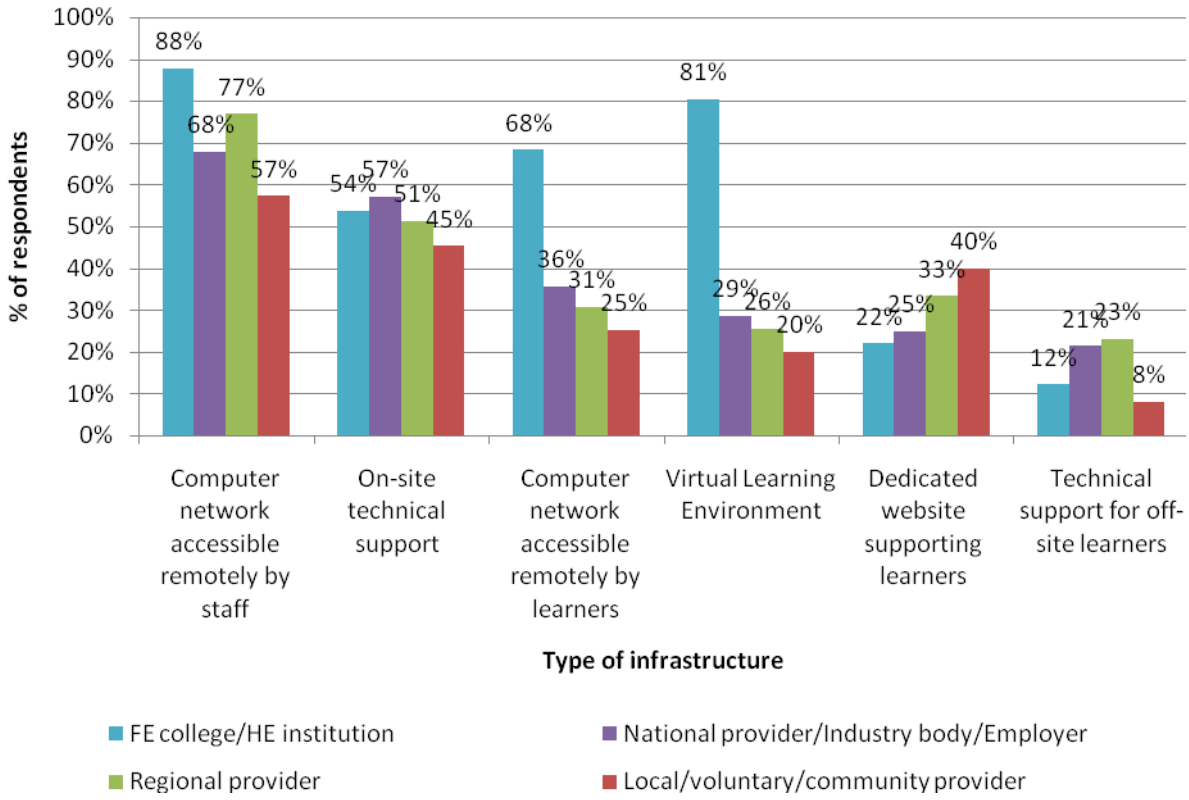
Figure 4: Infrastructure by size of provider (based on number of learners in the



previous month)

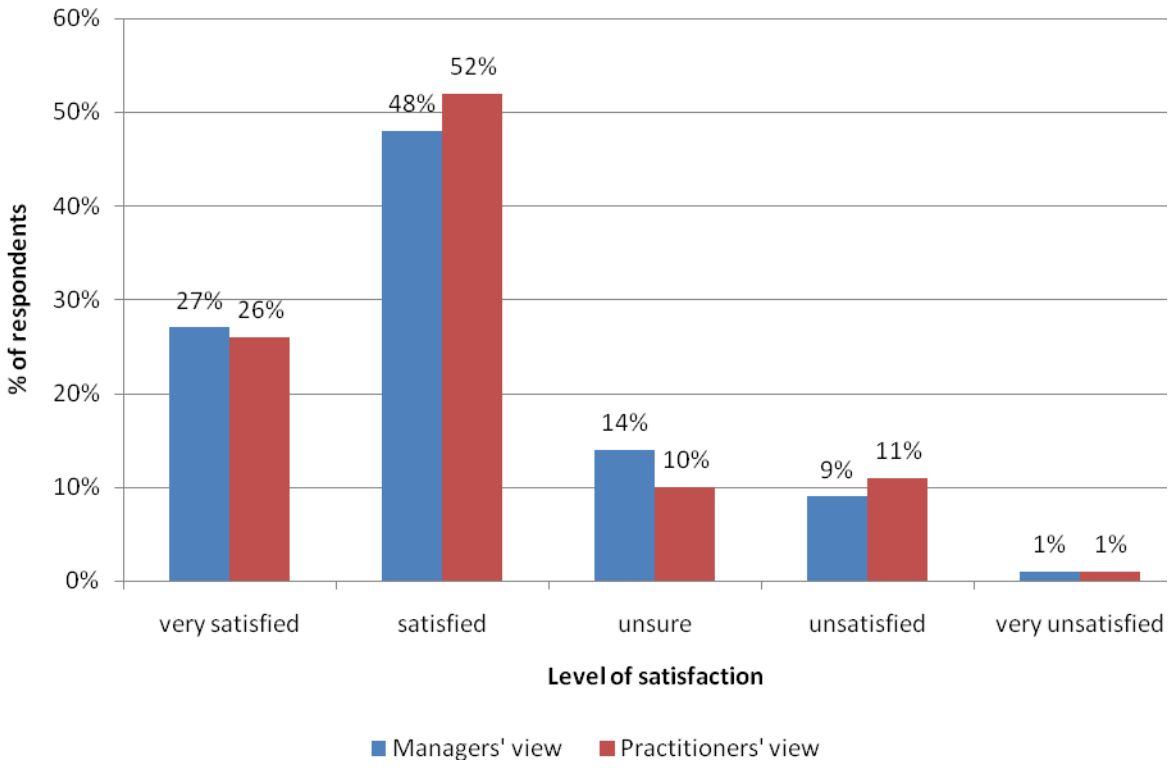
In addition, FE colleges are much more likely than other providers to have remotely accessible networks for learners and staff and to have virtual learning environments. With the exception of a dedicated website, local and voluntary or community-based providers are least likely to have each of the types of infrastructure in place.

Figure 5: Infrastructure by type of provider



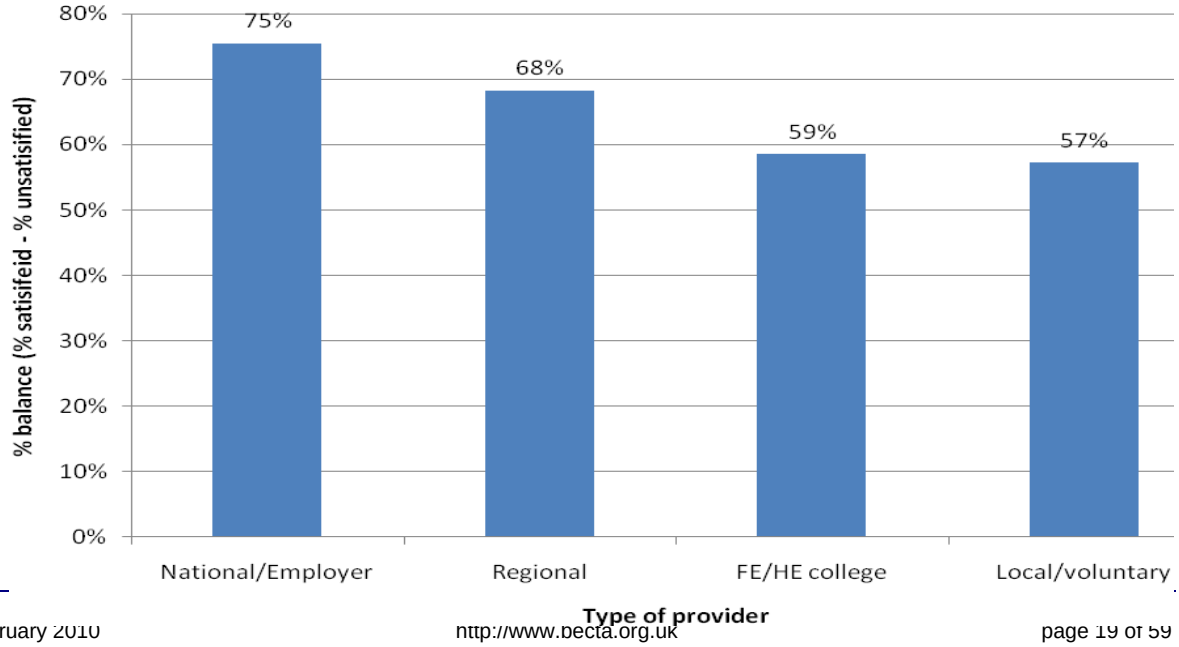
Overall, around three quarters of providers (75%) are satisfied or very satisfied that their staff have access to the appropriate technology that they need. One in ten are unsatisfied. Responses to the survey of tutors, assessors and verifiers corroborated this view. Over three quarters of practitioners responding (77%) are satisfied or very satisfied that they have access to appropriate technology and digital resources, with just 12% of them being unsatisfied. This provides the same picture as last year.

Figure 6: How satisfied managers and practitioners are that staff have access to the appropriate technology they need



On balance, practitioners working in national and regional providers are more likely to be satisfied that they have access to appropriate technology than staff in local and voluntary/community providers and in FE colleges.

Figure 7: Level of respondents' satisfaction that they have access to appropriate technology and digital resources (% balance of practitioners)



In addition, on balance practitioners mainly working in agriculture and construction (+72%) and in customer care, retailing, wholesaling, health and beauty and transport (+67%) are most likely to be satisfied. Those working primarily in hospitality, recreation and travel (+57%) and in Skills for Life (+60%) are less likely to be satisfied.

Table 5: Level of respondents' satisfaction that they have access to appropriate technology and digital resources (by occupational area)

Occupational area	**Base**	% satisfied/ v. satisfied (a)	% unsatisfied/ v. unsatisfied (b)	% Balance (a-b)
Agriculture/construction	**133**	81%	9%	+72
Customer service, retailing and wholesaling/health and beauty/transportation	**204**	77%	10%	+67
Engineering/manufacturing	**121**	79%	13%	+66
Health, care, education and public services	**226**	79%	14%	+65
Administration, IT, management/finance, insurance & real estate/media and printing	**206**	76%	13%	+63
Skills for Life/E2E/Key skills	**30**	77%	17%	+60
Hospitality, recreation and travel	**105**	71%	14%	+57

Practitioners reported that they have access to a wide range of technology. Four fifths (80%) have access to their own computers at work and nearly all (89%) have access to the internet. Over two thirds (69%) have access to a laptop when out of the office, although less than half can access their organisations network when away from work. Access to laptops by staff is higher than reported last year. Assessors and verifiers are more likely than tutors to have laptops and external access to their own network, reflecting the more mobile aspect of their role.

Table 6: Technology to which respondents have access

Technology	% of respondents* 2008	2007
Internet at work	89%	92%
Own computer at work	80%	79%
Laptop when out of the office	69%	59%
Digital cameras	64%	72%

External access to computer network	46%	53%
Data projectors	33%	48%
Electronic whiteboards	37%	46%
Virtual learning environment	23%	40%
Personal online learning space	28%	27%
Video-conferencing facilities	12%	12%
Base: All practitioners responding	**1,087**	**387**

*Multiple responses.
NB: Percentages highlighted in green and yellow indicate key findings.

The proportion of practitioners with access to data projectors, electronic whiteboards and virtual learning environments and to their own network when out of the office is less than reported last year, but this is likely to be because last year's sample included a higher proportion of practitioners working in FE colleges where these technologies are more common. It is less clear why the proportion of practitioners using digital cameras has fallen.

Table 7: Technology to which respondents have access (by type of provider)

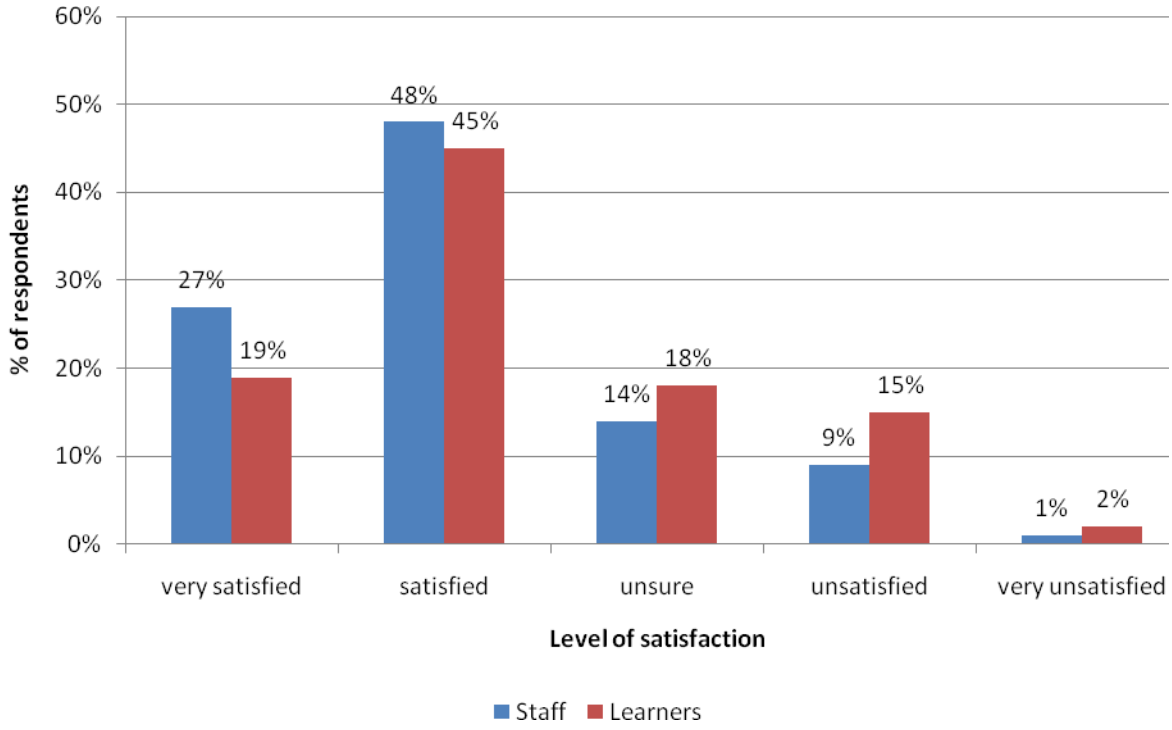
Technology	% of respondents*			
	National provider/ industry body/ employer	Regional provider	Local/voluntary/ community provider	FE/HE college
Internet at work	85%	91%	95%	90%
Own computer at work	75%	80%	83%	83%
Laptop when out of the office	87%	69%	60%	53%
Digital cameras	58%	63%	76%	62%
External access to computer network	53%	37%	30%	56%
Data projectors	28%	35%	37%	36%
Electronic whiteboards	17%	34%	42%	57%
Virtual learning environment	15%	20%	12%	40%
Personal online learning space	28%	24%	19%	36%
Video-	15%	13%	7%	11%

conferencing facilities				
Base	**345**	**216**	**208**	**309**

*Multiple responses.
NB: Percentages highlighted in yellow indicate key findings.

Around two thirds of providers (64%) are satisfied that learners have access to appropriate technology. One sixth (17%) are unsatisfied. This is a similar level of satisfaction to last year and suggests that providers are still more satisfied with their staff's access to technology than with their learners'.

Figure 8: Level of respondents' satisfaction that staff and learners have access to



appropriate technology

Learning resources

Most providers (79%) use computer-based learning resources in some of their learning programmes and this proportion has changed little over the last three years.

Providers are employing electronic learning resources across all types of work-based learning delivery. Around three quarters of providers delivering E2E (78%), apprenticeships (73%) and Skills for Life (71%) report using computer-based learning provision, as do two thirds of providers delivering foundation degrees (67%). These types of resources are used least in the provision of professional-body training (48%), industry-recognised or certified training (51%), Jobcentre Plus contracts (55%) and Train to Gain (58%).

Table 8: Learning programmes in which computer-based learning materials are used

Type of learning delivered	% delivering programme using materials	Base
Entry to Employment	78%	**78**
Apprenticeships	73%	**161**
Skills for Life	71%	**107**
Foundation degrees	67%	**39**
NVQs	63%	**131**
Train to Gain	58%	**135**
Jobcentre Plus provision	55%	**22**
Industry-recognised certificate/qualification	51%	**72**
Professional-body training	48%	**42**

Note: Percentages are based on the number or providers delivering learning in that programme area

Similarly, computer-based learning resources are used widely by providers across all occupational areas. They are used least among providers delivering in the areas of transportation (38%) and agriculture (46%), but by most providers delivering in media and printing (83%) and administration, IT, management and professional (75%) occupational areas.

Table 9: Occupational areas in which computer-based learning materials are used

Occupational area	% delivering programme using materials	Base
Media and printing	83%	**12**
Administration, IT, management and professional	75%	**118**
Health, care, education and public services	63%	**80**
Engineering	62%	**82**
Customer service, retailing and wholesaling	60%	**107**
Health and beauty	54%	**63**
Construction	54%	**76**
Finance, insurance and real estate	53%	**30**
Hospitality, recreation and travel	53%	**51**
Manufacturing, including food and drink	49%	**39**
Agriculture	46%	**26**

Transportation	38%	**21**

Note: Percentages are based on the number or providers delivering learning in that occupational area

Providers get their computer-based learning materials from a wide range of sources. Over three quarters of providers that are using them (77%) have bought them commercially, although a large proportion (63%) are using resources that are freely available online. In addition nearly two thirds (63%) have developed their own resources. This is a pattern similar to that reported last year.

Smaller providers, and particularly those that are regional, local or voluntary/community based, are less likely to develop their own resources in house or in partnership with others.

Table 10: Sources of computer-based learning materials

Source of learning materials	All	Size of provider		
		1-10 WBL employees	11-30 WBL employee	31+ WBL employees
Commercial bought-in	77%	71%	73%	84%
Freely available online	63%	71%	65%	58%
Developed in house	63%	50%	67%	63%
Developed in partnership	23%	8%	22%	30%
Not stated	1%	0%	2%	0%
Base	**145**	**24**	**63**	**57**

NB: Percentages highlighted in yellow indicate key findings.

Multiple responses

There is still a great deal of uncertainty over whether future income or savings will cover the costs of resources developed in house or in partnership. Nearly half (46%) of providers developing their own resources do not know whether they will cover their costs, and a further 13% do not believe they will cover the cost of development. Over two fifths of providers (42%) think that cost savings or income will cover costs – a slight increase on last year but similar to 2006. The high proportion of providers responding 'Don't know' means that comparisons with previous years should be treated with caution.

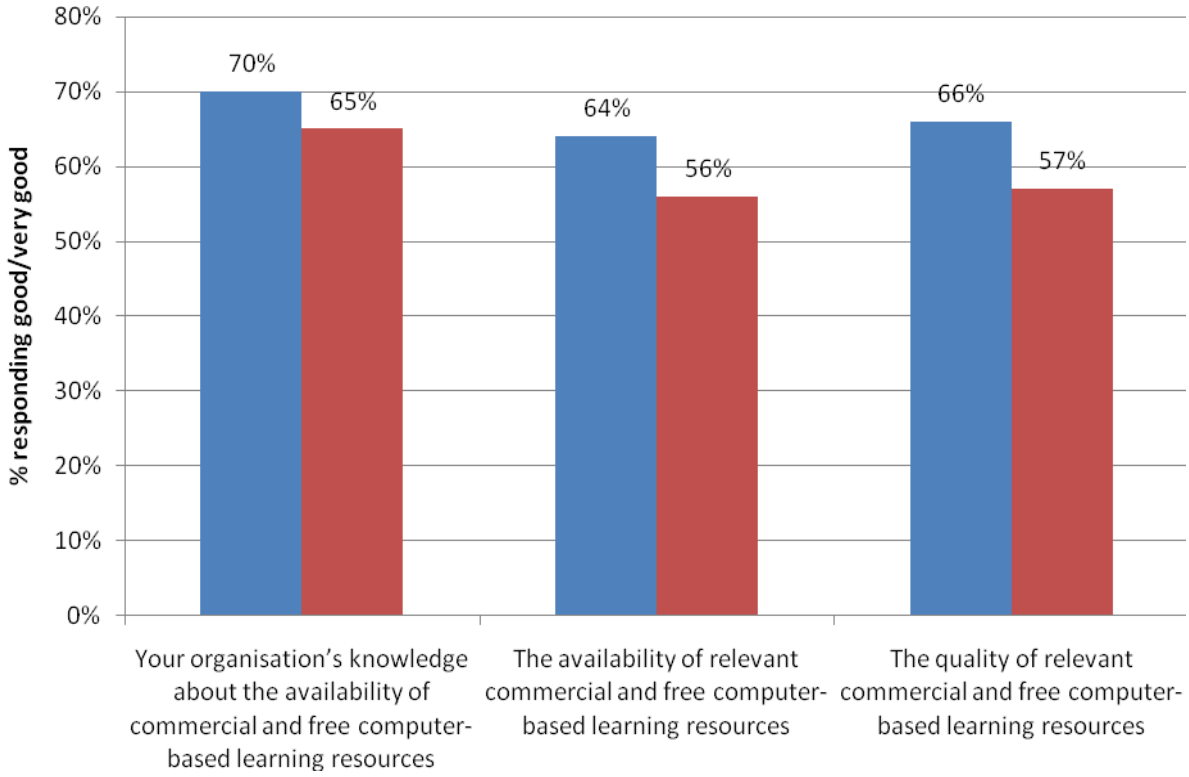
Table 11: Likelihood that costs of developing computer-based resources will be covered

Will costs be covered?	% of respondents			
	2008	2007	2006	2005
Don't know	46%	54%	32%	7%
No	13%	12%	24%	34%
Yes	42%	33%	44%	60%
Costs covered through:				

• both future income and cost savings	17%	15%	23%	24%
• future income only	12%	5%	15%	18%
• cost savings only	14%	13%	6%	18%
Base	**96**	**98**	**87**	**137**

Over two thirds of providers using computer-based learning materials (70%) feel that they have good or very good knowledge about their availability. Overall, the majority of providers believe that the materials' availability (64%) and quality (66%) are good or very good. This suggests that satisfaction with the availability and quality of commercially and freely available learning resources has increased slightly over the last year.

Figure 9: Provider rating on their knowledge of commercial and free computer-based

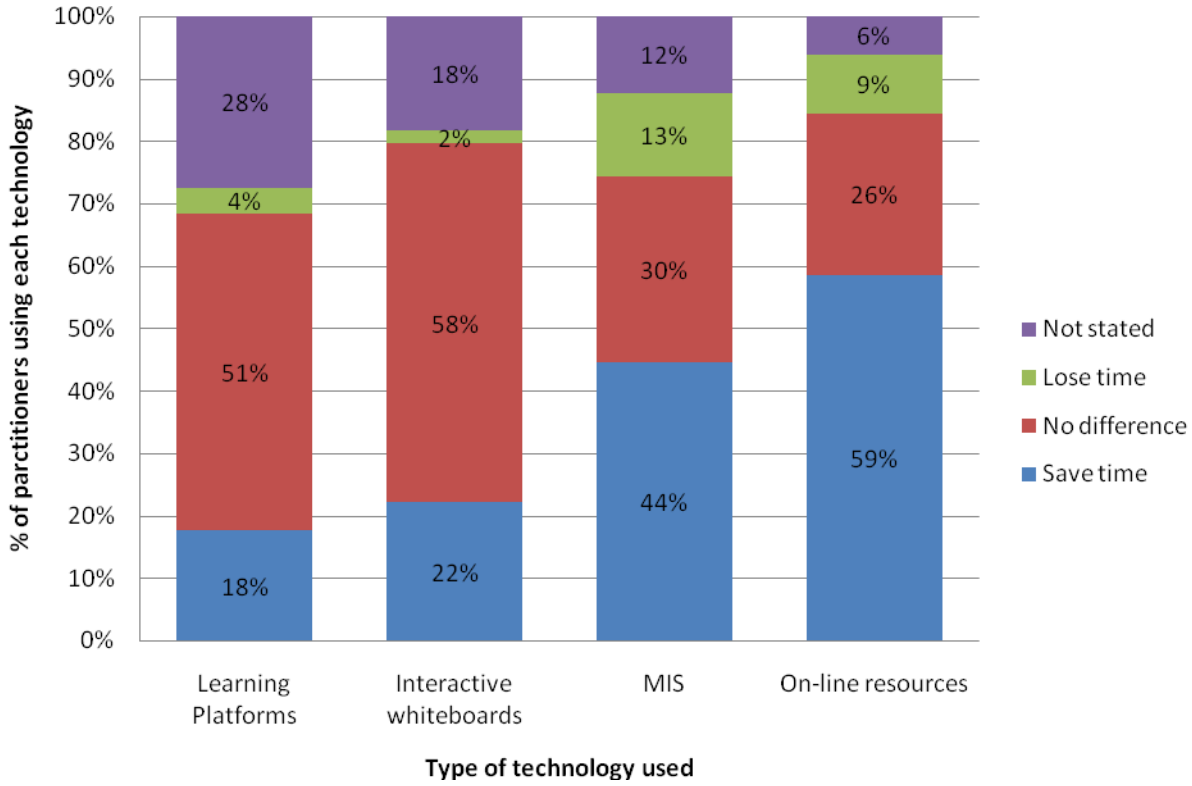


learning resources and of the latter's availability and quality

The impact of technology

Practitioners were asked how much time technology saves them each week. Nearly three fifths (59%) of practitioners that use online resources find that they save time, while just 9% find they lose time. Nearly half (44%) find management information systems (MIS) save time, while around one fifth save time using interactive whiteboards (22%) and learning platforms (18%). However, only 45% of practitioners responding use the latter two technologies.

Figure 10: Whether practitioners lose or save time each week using various



technologies

However, it is clear that management information systems and online resources can save practitioners significant time. Nearly one fifth of practitioners (18%) report that online resources save them over two hours per week, while 14% using MIS report that they also save them more than two hours/week.

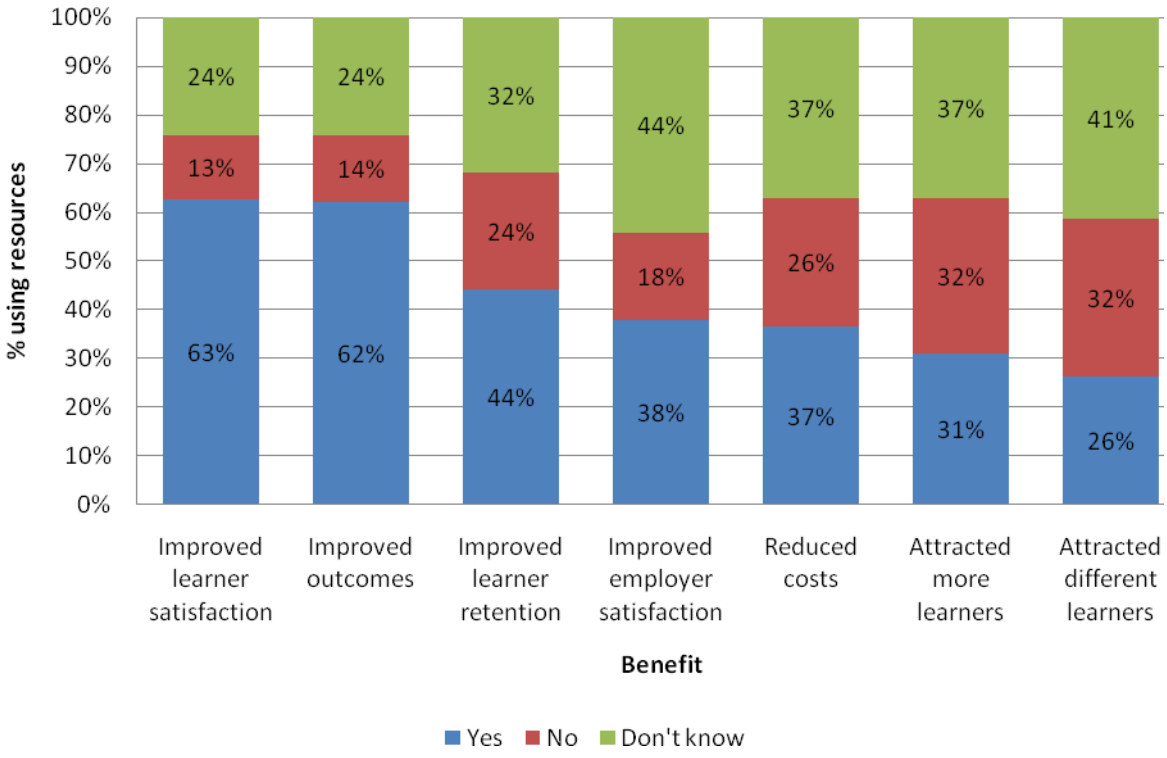
Table 12: Time currently lost or saved each week by using ICT resources

ICT resource	Time saved			Neither	Time lost			Not stated	Base
	> 2 hours	1-2 hours	<1 hour		<1 hour	1-2 hours	> 2 hours		
Online resources	18%	17%	23%	26%	4%	3%	2%	6%	**954**
MIS	14%	13%	17%	30%	7%	4%	2%	12%	**789**
Interactive whiteboards	5%	5%	12%	58%	2%	0%	0%	18%	**480**
Learning platforms	3%	6%	8%	51%	2%	2%	0%	28%	**487**

In addition, providers were asked to identify the benefits of using computer-based resources compared with more traditional learning resources. Nearly two thirds of

providers (63%) reported that they have improved learner satisfaction and improved outcomes (62%). Just under half (44%) report that they have improved retention. Fewer providers believe that using these resources has helped attract more (31%) or different (26%) learners. A significant minority of providers do not know whether using computer-based learning resources has had benefits or not.

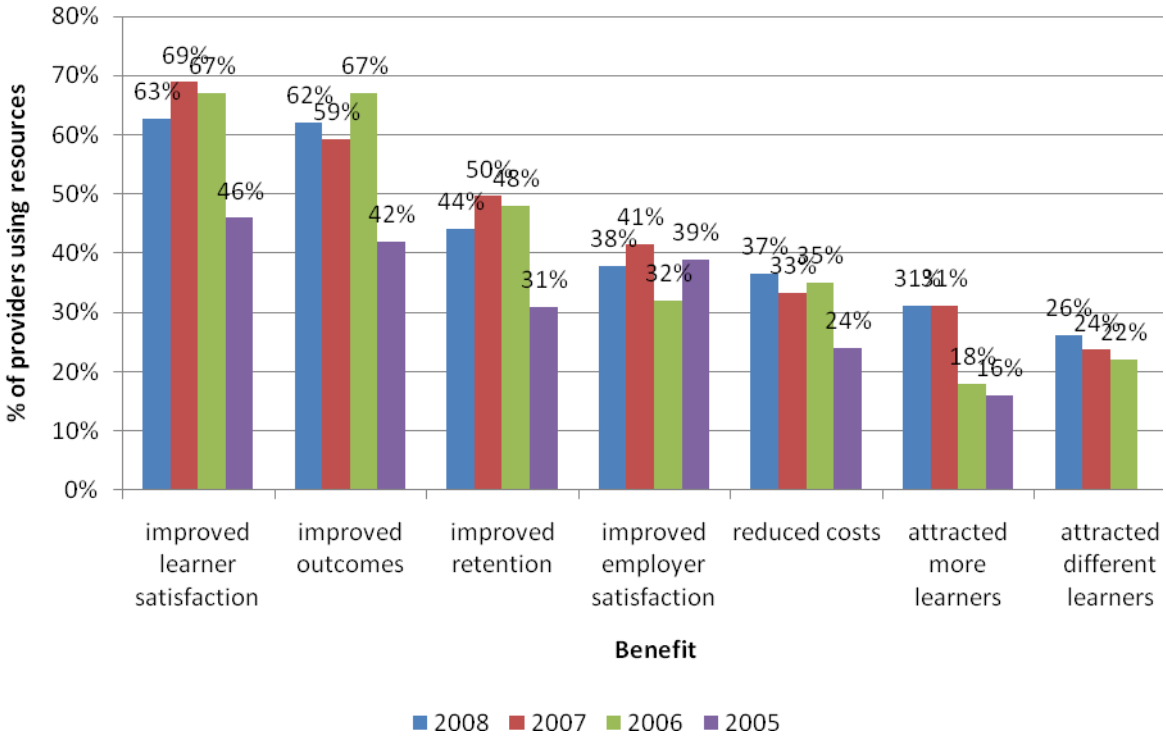
Figure 11: Benefits of using computer-based learning resources compared with more



traditional ones

More providers are reporting benefits from the use of computer-based learning resources than in 2005, but the number has remained consistent since 2006. The only exception is that, in 2007 and 2008, more providers reported that they are attracting more learners.

Figure 12: Benefits of using computer-based learning resources compared with more

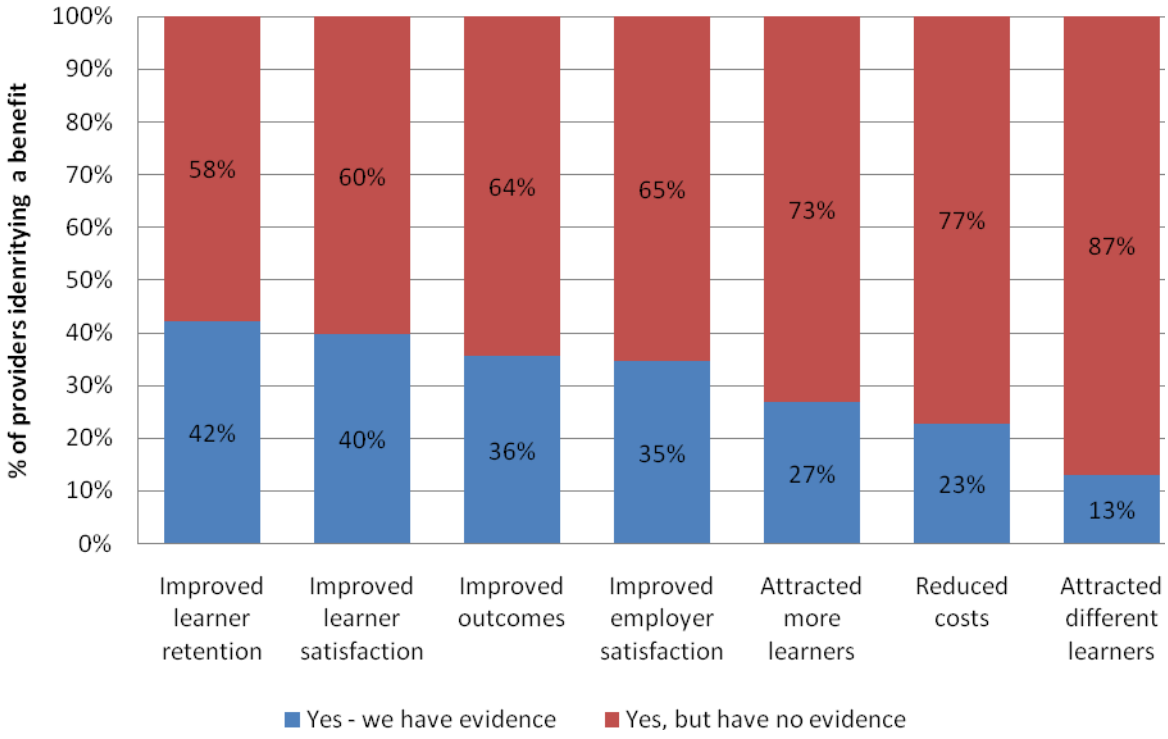


traditional resources (2005-08)

> Note: In 2005, providers were not asked whether they had attracted different learners.

However, few providers have any evidence to support their claims. Identifying benefits is difficult, but essential if a business case is to be made for further investment in computer-based learning resources. Around two fifths of providers identifying retention (42%), learner satisfaction (40%) and outcome (36%) benefits report that they have evidence to support the existence of these benefits, but that means, by implication, that the majority (around three fifths) do not.

Figure 13: Evidence of benefits of using computer-based learning resources compared with more traditional resources



Future investment

Nearly two thirds of providers (62%) have plans for capital investment in learning technology in 2009–10. Small providers (35%) and local/voluntary and community providers (55%) are least likely to have plans for such investment. Providers with clear managerial accountability for technology are more likely to be planning to invest than other providers.

Table 13: How managerial accountability affects plans for capital investment in learning technology in the financial year 2009–10

The way that technology is managed	% planning to invest	Base
There is clear managerial accountability for delivering and updating a coherent technology strategy	74%	**54**
There is clear managerial accountability for technology issues	63%	**82**
Technology management is devolved, with no overall coherence across the organisation	50%	**34**
There is no explicit managerial accountability for technology issues	39%	**13**

All providers	62%	**183**

Just over half of the providers planning to invest in capital next year (66) provided estimates of the level of investment. Between them, they intend to invest £3.22 million in learning technology capital in 2009–10 – an average of £48,700 each. However, the value of the investment varies widely, from £400,000 to just £2,000. This investment is mainly being planned to:

- replace existing computers (28%)
- introduce a new e-portfolio system (24%)
- purchase additional computers (18%)
- purchase mobile learning technology (10%).

Nearly all providers (85%) are prepared to make a contribution to any capital grant they receive. Just 6% said they were unable to this, because of a lack of funds.

Conclusions

Over the period of the four surveys, the levels and types of technology used by WBL providers appear to have remained fairly static. Any changes are small and difficult to distinguish from sample error. However, the survey appears to indicate increasing use of:

- electronic whiteboards, particularly in FE colleges
- the use of mobile devices for learning
- remote access to providers' networks for learners
- virtual learning environments
- dedicated websites to support learners.

Providers are continuing to invest in technology next year and there is general support for any capital grants programme which includes a provider-matched funding requirement. Much of the existing investment is intended to replace or increase the number of computers or introduce e-portfolio systems. Providers with clear managerial accountability for technology are more likely to be planning to invest than other providers.

The majority of providers and practitioners are satisfied that staff have access to appropriate technology, a level of satisfaction that is similar to last year's. However, providers are slightly less satisfied that learners have access to appropriate technology. This reinforces last year's conclusion that technology investment has been concentrated in the management and administration of learning rather than in its delivery.

Providers' use of computer-based learning resources has changed little over the last three years, and there is still a great deal of uncertainty over whether future income or savings will cover the costs of resources developed in house or in partnership.

There is general satisfaction with the availability and quality of commercial and free learning resources and this has increased slightly over the last year. However, while more providers are reporting benefits from the use of computer-based learning resources than in 2005, few have any evidence on which to base their claims. A significant minority of providers do not know whether using computer-based learning resources has conferred any benefits. Identifying benefits is difficult but essential if a business case is to be made for further investment in computer-based learning resources.

There is some evidence from practitioners that management information systems and online resources can save practitioners a significant amount of time. Fewer practitioners report that interactive whiteboards or learning platforms save them time, although less than half of practitioners use them.

Learner support, learning and teaching

Introduction

The *Harnessing Technology* strategy aims to develop a system which exploits the benefits of technology for learning and delivers improved learning outcomes for all. This includes improved personalised learning experiences and engaging and empowering learners.

In this section, we show how providers and practitioners are using technology to help improve the management of learning and to support its delivery.

Organisational use of technology

The proportion of WBL providers using technology for various purposes in 2008 is very similar to that reported in previous years. Around four fifths of providers are using technology to:

- help tutors develop paper-based WBL materials (86%)
- register learners (83%)
- help assess the initial skill needs of work-based learners (81%)
- help monitor work-based learners' progress (81%).

The way technology is used has also remained fairly consistent over the four years that the survey has been undertaken. The main changes have been an increase in the use of technology to help:

- tutors to develop electronic learning materials (an increase to 69% from 49% in 2005)
- learners to monitor their own progress (an increase to 31% from 19% in 2006 and 2007).

Table 14: How the organisation currently uses technology

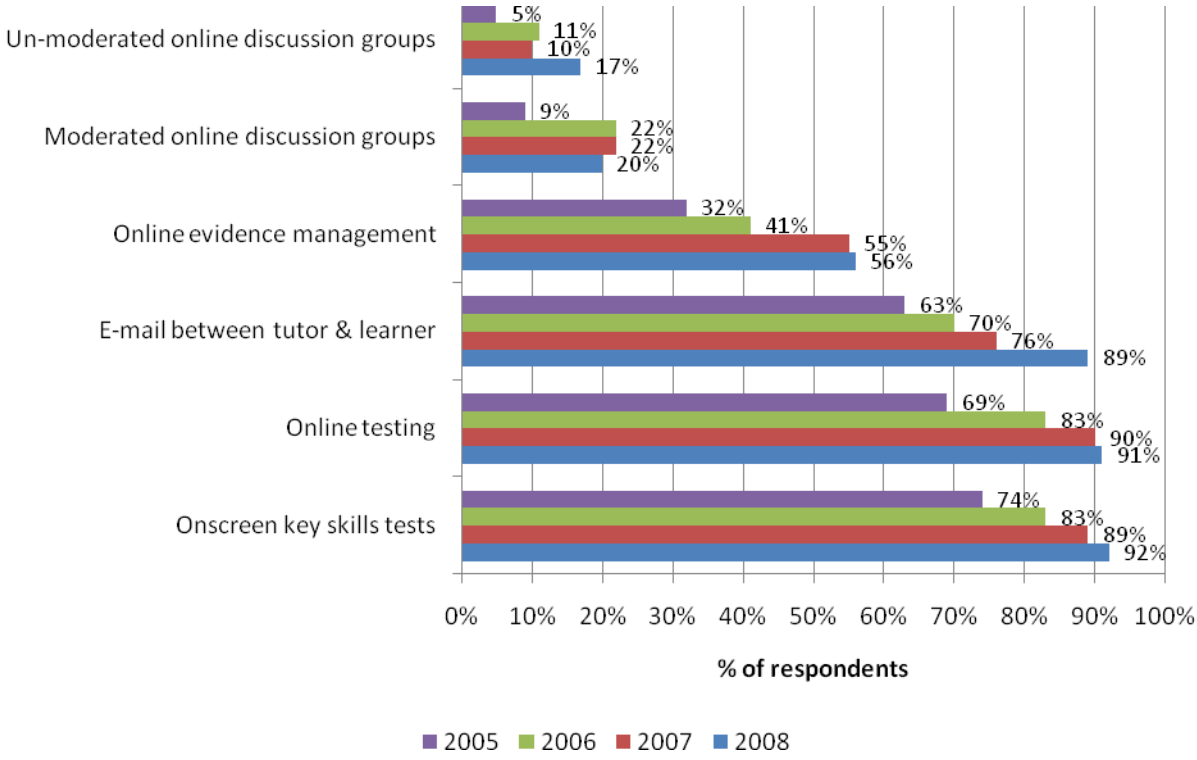
Current use of technology	% of respondents* 2008	2007
Help tutors develop paper-based WBL materials	86%	84%
Register learners	83%	85%
Help assess the initial skill needs of work-based learners	81%	80%
Help monitor work-based learners' progress	81%	78%
Help tutors develop electronic-based learning materials	69%	67%
Provide tutor support to work-based learners	63%	61%
Support collaboration between staff	58%	63%
Assess work-based learners for certification	57%	56%
Support learners' progress to other learning opportunities	33%	28%
Help work-based learners monitor their own progress	31%	19%
Support collaboration between learners – e.g. through email discussion groups	23%	24%
Help assess the training needs of employers	19%	18%
Base: All respondents	**183**	**160**

*Multiple responses.
NB: Percentages highlighted in yellow indicate key findings.

Specifically providers have increased their use of technology to support learners and for assessment:

- Online tests and onscreen key skills tests are now used by nine out of ten providers, and in about half of providers, they are employed in all their courses or programmes.
- The use of email to communicate between learners and tutors is also now used by 89% of providers. This support activity has had the greatest increase in usage over the last 12 months, although just one in five providers uses it across all its programmes.

- Over half of providers now use technology for online evidence management compared with one third four years ago. However, few providers are using this across all their provision (8%).



- Moderated and unmoderated online discussion groups are continuing to be used by a minority of providers and rarely across all provision, although the use of unmoderated groups has increased slightly over the last year.

Figure 14: Percentage of providers using technology for assessment and learner support

Table 15: Uses of technology included in work-based learning programmes or courses

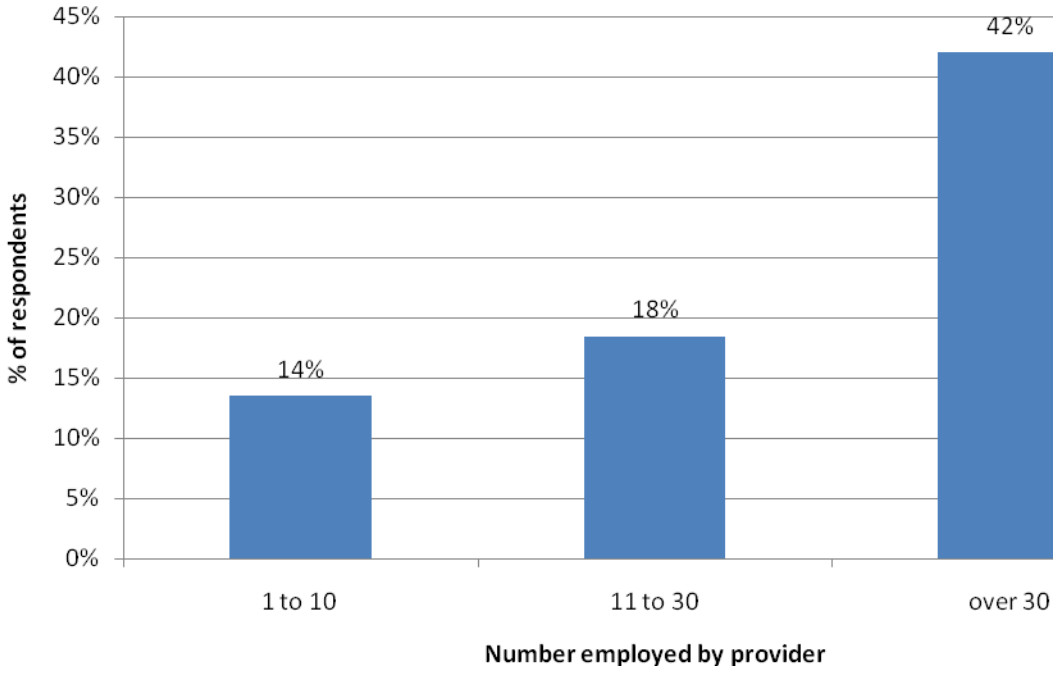
Use of technology	All	Most	Some	None	Don't know/No answer
Onscreen key skills tests	55%	24%	13%	6%	3%
Online testing	48%	25%	18%	6%	4%
Email between tutor and learner	19%	25%	45%	8%	3%
Online NVQ evidence management	8%	11%	37%	28%	17%
Moderated online	1%	3%	16%	61%	19%

discussion groups					
Unmoderated online discussion groups	2%	1%	14%	61%	22%
Base: All respondents (183)					

Note: Table shows row % i.e. each row totals 100% (allowing for rounding).

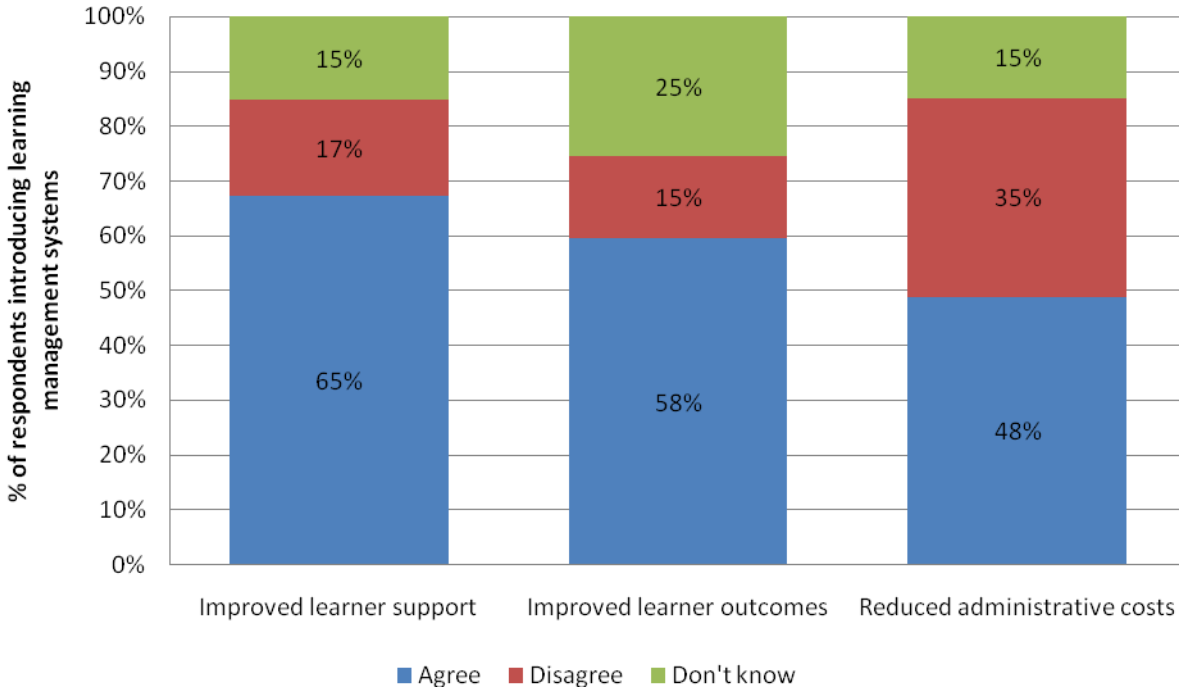
In addition just over one quarter of providers (26%) have introduced an integrated learner management system which lets learners manage their evidence portfolios online. Larger providers are more likely to have introduced these systems.

Figure 15: Respondents that have introduced integrated learner management systems that let learners manage their evidence portfolios online



Nearly two thirds of providers (65%) that have introduced these system agreed that they have improved learner support and over half (58%) agreed they have improved learner outcomes. However, over one third (35%) disagreed that the systems have reduced administrative costs. This reinforces previous findings that providers are unconvinced of the financial business case for introducing new learner management systems.

Figure 16: Improvements in learner support and outcomes and reduced administrative costs resulting from respondents' learner management systems



Currently two fifths of providers (41%) provide some of their learners with an online personal learning space allowing them to learn when and where they choose. However, over two thirds of these providers (68%) offer this across just some of their WBL programmes or courses. Provision of online learning space has not changed over the last year.

Practitioners' use of technology

Tutors, assessors and verifiers use technology for a wide range of purposes. Nearly all use it to:

- collaborate with colleagues (96%)
- research and access learning materials (95%)
- create paper-based learning materials (94%)
- help learners collect evidence (91%).

Practitioners are least likely to use it to:

- encourage collaboration between learners (76%)
- create electronic learning materials (77%).

Table 16: Percentage of practitioners using technology (occasionally/frequently/all the time) to perform various tasks

Current use of technology	% of respondents*
Collaborate with colleagues	96%
Research and access learning material	95%
Create paper-based learning materials	94%
Help learners collect evidence	91%
Track learners' progress	90%
Communicate with employers	90%
Communicate with learners in their workplace	85%
Manage individual target-setting for learners	84%
Assess learners' work	84%
Make learning materials available to learners electronically	82%
Create electronic learning materials	77%
Encourage collaboration between learners	76%
Base: All respondents	**1,047**

* Multiple responses.

Comparison with last year suggests that technology is being used by more practitioners and more often for:

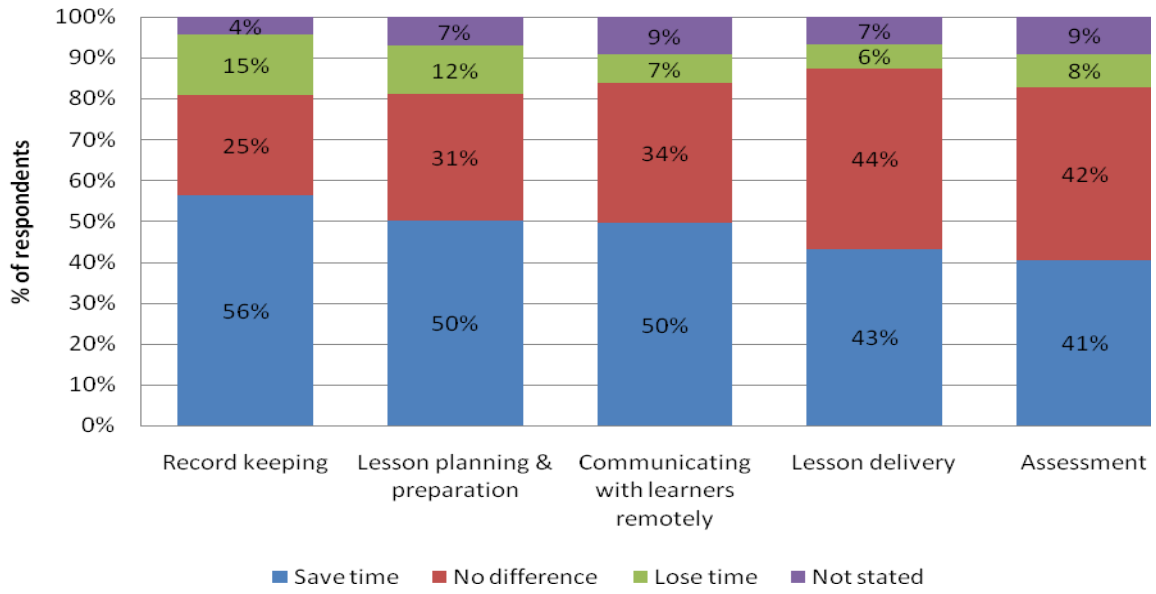
- communicating with learners in their workplace
- Used by 85% of practitioners compared to 73% last year. This may reflect the fact that providers report greater use of email in communications between learners and tutors.

- tracking learners' progress and managing individual target-setting
- Used by 90% (84% last year) and 84% (74% last year) of practitioners, respectively.

- helping learners collect evidence (91%) and assessing learners' work (84%), compared with 87% and 77% last year.

Table 17: Percentage of practitioners using technology (occasionally/frequently/all the time) to perform various tasks (2007 and 2008)

Current use of technology	% of respondents* 2008	2007
Collaborate with colleagues	87%	87%
Research and access learning material	78%	78%
Create paper-based learning materials	74%	77%
Track learners' progress	79%	69%



Help learners collect evidence	67%	58%
Communicate with employers	67%	N/A
Manage individual target-setting for learners	65%	50%
Communicate with learners in their workplace	63%	43%
Assess learners' work	61%	46%
Make learning materials available to learners electronically	50%	49%
Encourage collaboration between learners	47%	44%
Create electronic learning materials	46%	47%
Base: All respondents	**1,047**	**387**

*Multiple responses.
NB: Percentages highlighted in yellow indicate key findings.

Practitioners were asked how much time they saved or lost each week by using ICT for various tasks. Just over half of those (56%) who use technology for record keeping find that it saves time, while just 15% find they lose time. Half (50%) find using technology for lesson planning and preparation and for communicating with learners saves time. Just over two fifths report saving time by using technology for lesson delivery (43%) and assessment (41%). This is similar to the findings last year, although more practitioners (50%) than last year (41%) believe that using technology to communicate with learners is saving them time.

Figure 17: Whether time is currently lost or saved each week by using technology for various tasks

Using technology for record keeping and lesson planning can save practitioners most time during a week. One fifth of practitioners report that using technology for record keeping saves them over two hours per week, as do 16% who use it to communicate with learners remotely.

Table 18: Time currently lost or saved each week by using technology for various tasks?

Task	Time saved			Neither	Time lost			Not stated	Base: no. using
	> 2 hours	1-2 hours	<1 hour		<1 hour	1-2 hours	> 2 hours		
Record keeping	20%	14%	22%	25%	5%	5%	4%	4%	1,014
Communicating with learners remotely	16%	13%	20%	34%	4%	2%	1%	9%	831
Lesson planning and preparation	15%	14%	21%	31%	4%	4%	4%	7%	872
Lesson delivery	12%	14%	17%	44%	2%	2%	2%	7%	206*
Assessment	11%	13%	16%	42%	3%	3%	2%	9%	848

* This question was only asked in the paper version of the questionnaire

Conclusions

The WBL sector has gradually broadened its use of technology over the last four years. The quickest and the most widely taken-up uses have been associated with:

- online and onscreen assessment
- the administration of learning such as registering learners and record keeping
- helping practitioners to develop learning materials, particularly paper-based materials.

More recently, there has been increasing use of technology to:

- improve communication with learners, colleagues and employers – the last 12 months has seen a particular rise in the use of email
- track learners' progress, set targets and help learners collect evidence.

The number of providers introducing learner management systems has increased slightly, but they are still in the minority. These systems are generally not being widely used across provider programmes even where they have been introduced. This partly reflects uncertainty over their cost–benefit. The majority of providers using such systems have identified benefits to learners, but a significant minority have not identified any financial savings from such systems. Providers are therefore being cautious about undertaking the financial investment necessary.

Practitioners' skills and e-maturity

Introduction

Technology-confident effective providers:

- achieve well on e-maturity criteria
- are capable of supporting home and extended learning
- have technology-based tools and resources to support effective teaching.

In this section, we:

- discuss whether practitioners have the skills and competences to ensure that technology is used to deliver effective learning
- assess the e-maturity of work-based learners using the methodology employed last year.

Practitioners' skills

We explored the extent of practitioners' skills in relation to:

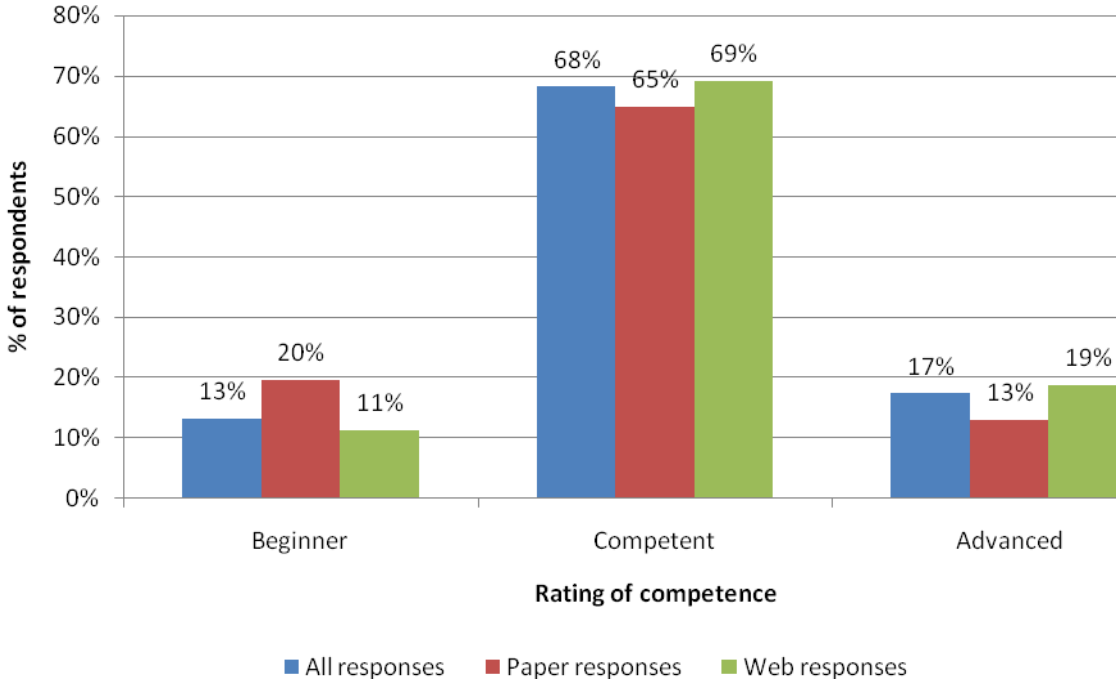
- ICT user skills – for example, using word-processors or spreadsheets
- the use of technology with learners, either in the classroom or for remote learning.

ICT user skills

We asked practitioners to rate their own level of competence in ICT user skills. The majority (86%) rated themselves as competent or advanced and 13% rated themselves as beginners. This is the same level as reported last year, when 84% rated themselves as competent or advanced.

However, we received three times as many responses from our web-based survey as our paper questionnaire and there is a small difference between types of responses. One fifth of practitioners (20%) responding by paper considered themselves to be beginners compared to 11% of web respondents. Fewer paper respondents also considered themselves to be advanced.

Figure 18: Rating of competence in ICT user skills (e.g. using word processors or



spreadsheets)

There were also differences across the occupational areas in which practitioners worked:

- As might be expected, practitioners working in administration, IT, management and professional occupational areas are least likely to rate themselves as beginners (3%) and most likely to rank themselves as advanced (36%).

- Practitioners working in customer service, retailing and wholesaling, health and beauty and transportation are most likely to rate themselves as beginners (19%) and least likely to rank themselves as advanced (9%).

Table 19: Respondents' rating of their competence in ICT user skills in various occupations

Occupational area	% reporting themselves beginners	**Base**
Customer service, retailing and wholesaling/ health and beauty/transportation	19%	**204**
Agriculture/construction	17%	**133**
Health, care, education and public	17%	**105**

services		
Engineering/manufacturing	12%	**121**
Hospitality, recreation and travel	11%	**226**
Skills for Life/E2E/key skills	3%	**30**
Administration, IT, management/finance, insurance and real estate/media and printing	3%	**206**

This self-assessment of competence is confirmed by the results of the provider survey, which asked managers to identify the proportion of staff they consider to be beginners, competent or advanced in ICT user skills. Based on the average of the values given by each provider, we estimate that, across the sector as a whole, 75% of practitioners are either competent or advanced in ICT user skills. This is similar to last year's average (77%). One in ten (10%) providers report that more than half of their tutors, assessors or verifiers are beginners, but around one fifth (21%) report that less than 10% of their practitioners are beginners.

Providers were also asked their views on whether they think tutors, assessors and verifiers are able to share and use information and data effectively for the benefit of learners. Although this may not be entirely linked, the level of ICT user skills responses provide a similar picture:

- over two thirds (69%) agreed that practitioners are able to use and share information and data effectively
- just over one fifth (21%) disagreed.

This is a response similar to last year's.

Table 20: Levels of agreement that tutors, assessors and verifiers are able to share and use information and data effectively for the benefit of learners

Extent of agreement	% of respondents	
	2008	2007
Strongly agree	9%	8%
Agree	60%	66%
Disagree	19%	19%
Strongly disagree	2%	3%
Don't know	10%	5%
Base: All respondents	**183**	**160**

Use of technology with learners

Fewer tutors, assessors and verifiers rate themselves as competent or advanced in the use of technology in the classroom or for remote learning than they do in the use of ICT generally. Just under one quarter of practitioners (22%) rate themselves as

beginners in this respect compared to 13% in respect of ICT user skills. Just over one in ten (12%) rate themselves as advanced.

There was no significant difference between practitioners responding by paper or online, but the differences across occupational areas were similar to the answers resulting from the question about ICT user skills:

- Practitioners working in administration, IT, management and professional occupational areas are least likely to rate themselves as beginners (12%) and most likely to rank themselves as advanced (24%).
- Practitioners working in customer service, retailing and wholesaling, health and beauty, and transportation are most likely to rate themselves as beginners (29%) and least likely to rank themselves as advanced (5%).

Table 21: Respondents' ratings of their skills in the use of technology with learners (in the classroom or remotely)

Occupational area	% reporting themselves beginners	**Base**
Customer service, retailing and wholesaling/ health and beauty/transportation	29%	**204**
Health, care, education and public services	28%	**226**
Agriculture/construction	23%	**133**
Hospitality, recreation and travel	17%	**105**
Skills for Life/E2E/key skills	17%	**30**
Engineering/manufacturing	17%	**121**
Administration, IT, management/finance, insurance and real estate/media and printing	12%	**206**

Our provider survey also found that managers believe that tutors, assessors and verifiers have slightly lower levels of skills when using technology in the classroom or for remote learning. One in five (20%) providers report that more than half of their tutors, assessors or verifiers are beginners in the use of technology in the classroom or for remote learning. This is twice the number that report this many beginners in ICT user skills. Based on the average of the values given by each provider, we estimate that, across the sector as a whole, 62% of practitioners are either competent or advanced in the use of technology in the classroom or for remote learning. This is similar to the last year's average (66%).

In addition, half of providers (50%) believe that tutors exploit technology consistently to offer engaging and effective learning experiences, while two fifths (39%) do not. This is similar to last year's response.

Table 22: Extent of agreement that tutors exploit technology consistently to offer engaging and effective learning experiences

Extent of agreement	% of respondents	
	2008	2007
Strongly agree	4%	3%
Agree	46%	41%
Disagree	34%	36%
Strongly disagree	4%	8%
Don't know	11%	12%
Base: All respondents	**183**	**160**

Skills gaps

The majority of WBL providers (73%) believe that there is a gap between the skills their workforce needs to effectively deliver and support learning using technology and the skills they actually have. This is a slight fall compared to last year (80%).

Although the sample is small, there appears to be a relationship between having clear managerial accountability for technology and being less likely to have a skills gap. Fewer providers with clear management accountability for technology report skills gaps.

Table 23: Percentage reporting a gap between the skills that the workforce needs to effectively deliver and support learning using technology and the skills they actually have

Approach to managing technology	% reporting a gap in skills	Base
No explicit managerial accountability	92%	**13**
Management is devolved, with no overall coherence across the organisation	91%	**34**
Clear managerial accountability for technology issues	72%	**82**
Clear managerial accountability for delivering and updating a coherent technology strategy	57%	**54**
All providers	73%	**183**

Providers are most likely to identify skills gaps in:

- developing electronic learning materials (81%)
- teaching and facilitating online (73%)
- knowledge of how to best use ICT resources (71%)
- using specialist software packages (68%)
- knowledge of how to use ICT to manage learning (59%)
- knowledge of how to access ICT-based learning resources (53%).

Although the proportion of providers identifying skills gaps may have declined slightly, the number and range of skills gaps have increased since 2006. The only areas where the proportion of providers with skills gaps has remained constant are ICT user skills and using technology to develop paper-based learning materials.

Over the last year, there has been a particular increase in skills gaps in:

- using technology face to face with students
- developing electronic learning materials
- using specialist software packages.

Table 24: Existing skills gaps

Skills gap	% of respondents*		
	2008	2007	2006
Developing electronic learning materials	81%	72%	54%
Teaching and facilitating online	73%	66%	61%
Knowledge of how to best use ICT resources	71%	63%	55%
Using specialist software packages	68%	59%	56%
Knowledge of how to use technology to manage learning	59%	59%	42%
Knowledge of how to access ICT-based learning resources	53%	53%	36%
Using technology face-to-face with students	44%	32%	30%
ICT user skills such as using word-processing or spreadsheets	38%	35%	39%
Using technology to develop paper-based learning materials	29%	32%	23%
Base: Respondents who have a skills gap	**133**	**128**	**132**

*Multiple responses.
NB: Percentages highlighted in yellow indicate key findings.

Tutors, assessors and verifiers agreed that these were areas where they need to develop their skills, although there is no change in the response reported last year:

- Nearly two thirds of practitioners (62%) feel they need to improve their use of specialist software packages.
- About half believe that they need to increase their skills in relation to developing electronic learning materials (51%) and teaching and facilitating online (48%).
- Some 42% would like to know more about the availability of online learning resources.

Table 25: Ways in which skills or knowledge need to be improved

Skills or knowledge area	% of respondents*	
	2008	2007
Using specialist software packages	62%	66%
Developing electronic learning materials	51%	52%
Teaching and facilitating online	48%	48%
Knowledge of availability of online learning resources	42%	45%
Using ICT to manage learning and workload	36%	36%
ICT user skills	28%	28%
Using ICT face to face with learners	27%	25%
Using ICT to develop paper-based learning materials	23%	21%
Base: All respondents	**1,087**	**387**

*Multiple responses.

Provider e-maturity

In 2007, we developed a measure of provider e-maturity-based on the *E-maturity Framework for Education* (EMFFE) developed for FE colleges by Becta and on responses to the provider survey. The latter was based on measuring a provider's activity against six equally weighted attributes:

- management and planning
- human resources
- technology
- learning resources
- learner support
- learning and teaching.

Providers were then categorised into one of five e-maturity categories depending on their e-maturity score (out of 120):

- more than 100 points: 'Innovative'
- 80–100 points: 'Embedded'
- 60–80 points: 'Transformative'
- 40–60 points: 'Co-ordinated'
- less than 40 points: 'Localised'.

Applying the same framework to responses to the 2008 survey reveals that, taking into account sample error, the level of e-maturity among providers has remained the same over the last 12 months. The median e-maturity score is 76 compared with 74 last year.

Overall, just six WBL providers (3%) are categorised as innovative, although one third of providers (34%) are categorised as embedded. A further 27% have either a localised (8%) or co-ordinated (19%) approach – they can be considered late adopters of technology.

Table 26: WBL providers' level of e-maturity (2007–08)

E-maturity group (score/120)	% of providers	
	2008	2007
Localised (under 40)	8%	6%
Co-ordinated (40–60)	19%	19%
Transformative (60–80)	36%	41%
Embedded (80–100)	34%	33%
Innovative (over 100)	3%	2%
Base	**183**	**160**

Table 27 provides an indication of the median and percentile scores for each of the six WBL attributes out of a total score of 20. It shows that WBL providers are least e-mature in the areas of learner support, learning and teaching, and technology. They are most e-mature in the areas of management and planning, learning resources, and human resources.

Table 27: WBL e-maturity attribute scores

E-maturity attribute	Median score out of 20	75th percentile	25th percentile
Management and planning	17	19	13
Learning resources	16	19	10
Staff development	15	18	10
Technology	12	14	10
Learning and teaching	11	13	8
Learner support	8	10	6

Compared to last year, the median e-maturity attribute score for management has increased slightly, which we believe reflects a change in one of the questions used to measure this attribute. On the other hand, the median e-maturity attribute score for learning resources has declined slightly. This is because providers report that they are using learning resources across a slightly lower proportion of the occupational areas and programmes they cover, or this difference could be due to sample error.

Table 28: WBL e-maturity attribute scores (2007–08)

E-maturity attribute	Median score out of 20	
	2008	2007
Management and planning	17	15
Learning resources	16	17
Staff development	15	15
Technology	12	12
Learning and teaching	11	11
Learning support	8	8

Conclusions

Most WBL tutors, assessors and verifiers have good levels of ICT user skills. However, around one in seven are classed as beginners, and for one in ten providers, this accounts for over half of their practitioners. Fewer practitioners have good skills in using technology with learners: around one in four are classed as beginners in this respect, and only one in ten are classified as advanced. Practitioners with lower skill levels appear to be concentrated in particular occupational areas, perhaps reflecting the culture of these sectors.

The majority of providers report technology-related skills gaps in their workforce, and the range of skills missing is increasing. However, having clear management accountability for technology reduces the likelihood of providers having skills gaps.

As a result of skills gaps, only half of providers believe that their tutors are exploiting technology consistently and effectively.

The level of e-maturity among providers has remained the same over the last year with around one quarter of providers remaining late adopters and a small innovative core leading the way.

Impact and challenges

Much of the previous analysis in this report has reviewed the use of technology in the WBL sector and examined the processes underpinning this use. To assess the effectiveness of the revised *Harnessing Technology* strategy, it is necessary to review the impact that technology is having and how this relates to the intended system outcomes.

In this section, we present:

- providers' and practitioners' views on the impact that technology has had
- some of the challenges associated with implementing technology in the future.

Impact of technology

Our research gained the views of both WBL providers' managers and WBL practitioners on the impact of technology. We discuss each separately below.

WBL providers

Providers were asked to identify what overall impacts they believe their use of technology has had. One impact stands out: three quarters of providers (74%) report that technology has led to more efficient management and administration of learning. In addition, over half report that it has:

- increased the choice of methods of learning for learners (59%)
- improved the quality of learning delivered (54%)
- led to more effective assessment of learning (53%)
- saved time for tutors, assessors and verifiers (53%).

Providers are more likely to identify impacts on processes than on outcomes, perhaps because the impact of technology is difficult to isolate. Fewer providers identified impacts on achievement (39%), completion (32%) or retention (28%).

Providers are least likely to report that their use of technology has had an impact on recruitment, either in terms of attracting more (16%) or different (15%) learners.

Fewer providers than last year report that their use of technology has increased the choice of methods of learning for learners. It is not clear why this is so. Other differences are minor and can be attributed to sample error.

Table 29: Impacts of the use of technology

Impact	% of respondents* 2008	2007
More efficient management and administration of learning	74%	73%
Increased the choice of methods of learning for learners	59%	72%
Improved the quality of learning delivered	54%	58%
Saved time for tutors, assessors and verifiers	53%	58%
More effective assessment of learning	53%	50%
Tailored the learning experience more closely to individual learner needs	48%	51%
Increased the motivation of learners	48%	48%
Increased the motivation of staff	44%	41%
Increased achievement	39%	45%
Increase learner satisfaction	38%	46%
Increased collaboration between staff	37%	34%
Increased completion	32%	39%
Increased the choice of learning opportunities offered	32%	38%
Increased retention	28%	32%
Attracted more learners	16%	15%
Attract different groups of learners	15%	15%
None of the above	2%	3%
Base: All respondents	**183**	**160**

*Multiple responses.
NB: Percentages highlighted in yellow indicate key findings.

Practitioners

When practitioners were asked whether they thought the use of technology has had a positive impact on the activities of their employers, their views were similar to the responses of WBL managers. Over three quarters thought that technology has (to a small or large extent):

- allowed greater choice in learning opportunities for learners (78%)
- increased efficiency in delivery and administration (77%).

Over two thirds believed it has improved:

- staff's continuing professional development (74%)
- learner satisfaction (67%)
- staff satisfaction (67%).

The smallest percentage (52%) felt that it has helped, to some extent, to improve engagement with employers or learner retention.

These results are similar to last year's, although this year more practitioners reported increased efficiency in assessing learners, and more of these practitioners report that it has had an impact to a large extent.

Table 30: Positive impacts of using technology (2007 and 2008)

Impact	% of respondents responding 'To large extent' or 'A bit' 2008	2007
Allowed greater choice in learning opportunities for learners	78%	81%
Increased efficiency in delivery and administration	77%	76%
Improved staff's continuing professional development	74%	72%
Improved staff satisfaction	67%	66%
Improved learner satisfaction	67%	68%
Increased efficiency in assessing learners	65%	59%
Improved learner outcomes	64%	Not asked
Helped attract more learners	57%	53%
Improved learner retention	52%	53%
Improved engagement with employers	52%	Not asked
Base: All respondents	**183**	**160**

NB: Percentages highlighted in yellow indicate key findings.

Challenges

Providers were asked to identify the three main barriers to their organisation using technology to manage or deliver e-learning in the next two years. The most common barriers identified were:

- lack of capital funding (67%)
- lack of time to investigate or implement e-learning (50%)
- lack of skills among staff to implement e-learning (40%).

The barriers identified by the fewest providers include insufficient return on investment (12%) and lack of demand from learners (14%).

Table 31: Three main barriers to using technology to manage or deliver e-learning in the next two years

Barrier	% of respondents* 2008	2007
Lack of capital funding	67%	Not asked
Time to investigate or implement e-learning	50%	55%
Lack of skills among staff to implement e-learning	40%	44%
Lack of knowledge about its potential use and implementation	32%	41%
Employers' ICT infrastructure	31%	27%
Lack of demand from employers	25%	31%
Providers' ICT infrastructure	23%	25%
Lack of suitable e-learning materials	21%	23%
Organisation's ability to provide ICT technical support	20%	18%
Lack of demand from learners	14%	11%
Insufficient return on investment	12%	19%
Base: All respondents	**183**	**160**

*Multiple responses (3 allowed).
NB: Percentages highlighted in yellow indicate key findings.

These results reinforce our conclusions from last year which suggest that, although more providers feel better informed about the potential use and implementation of technology, a lack of capital funding and a lack of evidence about the commercial benefits of investment are significant barriers to its introduction. The current economic situation and the resulting limited access to finance is likely to make this more difficult.

Conclusions

Most providers and practitioners agree that technology has had an impact on the efficient management and delivery of learning and many practitioners highlight specific time savings.

Although providers are generally focusing on the use of technology to improve business processes and learning management, the majority of providers and practitioners believe that technology has improved the quality of learning and learning outcomes as well as the effectiveness of assessment. Practitioners, in particular, also highlight the impact it has had on learner and staff satisfaction.

Some providers are undertaking significant investment in technology capital, but a lack of capital funding is identified as significant barrier to providers' future use of technology. This is likely to be even more difficult to obtain in the current economic climate. A lack of time and skills are further important barriers.

Conclusions and baselines

Conclusions

This year's research reinforces the conclusions from last year and shows that, although general technological change is rapid, most work-based learning providers have been cautious about its introduction and use over the last three years. As a result, the level of provider e-maturity within the WBL sector has remained unchanged over the last year. Just under two fifths of providers are considered to be e-mature, with a small number taking an innovative lead. However, over a quarter of providers are late adopters of technology. The challenge is to persuade and support these providers to make greater use of technology so that they are able to improve the effectiveness and quality of their learning offer.

A number of factors combine to make an e-mature provider. Our research highlights some of the trends and issues associated with each of these factors.

Management, planning and partnership working

The research shows that having clear management responsibility and planning processes for the implementation of technology leads to more effective and efficient use of it. Providers are better able to identify how to use technology to support learners, identify the costs and benefits involved and ensure that the organisation has the right skills.

The majority of providers believe they have senior managers with the skills and knowledge to make effective use of technology, and most have clear management and planning processes for its implementation. However, this is not the case with a small core of providers, and the survey suggests that the size of this minority has not changed over the last few years.

Many providers are working in partnership with a wide range of other organisations, including other WBL providers, but few have found these partnerships effective in helping them to harness technology. We do not know the reasons for this lack of effectiveness, but our previous research has highlighted some frustration with technology suppliers in particular.

Infrastructure and learning resources

Over the last three years, the levels and types of technology used by WBL providers has remained fairly static. Any changes are small and thus difficult to distinguish from sample error. This may reflect the relatively large capital costs associated with purchasing the infrastructure and then ensuring it is implemented effectively. However, the survey appears to indicate increasing use of:

- electronic whiteboards, particularly in FE colleges
- mobile devices for learning (by a relatively small number of providers)
- remote learner access to providers' networks

- virtual learning environments
- dedicated websites to support learners.

Providers will continue to invest in technology next year and there is general support for any capital grants programme which includes a provider-matched funding requirement. Much of the existing investment is used to replace or increase the number of computers or introduce e-portfolio systems.

The majority of providers and practitioners are satisfied that staff have access to appropriate technology and these levels of satisfaction are similar to last year's. However, providers are slightly less satisfied that learners have access to appropriate technology. This reinforces last year's conclusion that technology investment has been made in the management and administration of learning rather than in its delivery.

Providers' use of computer-based learning resources has also changed little over the last three years, and there is still a great deal of uncertainty over whether future income or savings will cover the costs of resources developed in house or in partnership.

The general satisfaction with the availability and quality of commercial and free learning resources has increased slightly over the last year. However, while more providers are reporting benefits from the use of computer-based learning resources than in 2005, few still have any evidence to support their claims. In addition, a significant minority of providers does not know whether using computer-based learning resources confers any benefits. Identifying benefits is difficult, but essential if any business case is to be made for further investment in computer-based learning resources.

There is some evidence from practitioners that management information systems and online resources can save practitioners a significant amount of time. Fewer practitioners report that interactive whiteboards or learning platforms save them time, although less than half of practitioners use them.

Use of technology

The WBL sector has gradually broadened its use of technology over the last four years. The quickest and the most widely taken-up uses have been associated with:

- online and on-screen assessment
- the administration of learning, such as registering learners and record keeping
- helping practitioners to develop learning materials, particularly paper-based ones.

More recently there has been increasing use of technology to:

- improve communications with learners, colleagues and employers – the last 12 months has seen a particular rise in the use of email
- track learners' progress, set targets and help learners collect evidence.

The number of providers introducing learner management systems has increased slightly, but they are still in the minority. These systems are generally not being widely used across provider programmes even where they have been introduced. This partly reflects uncertainty over their cost–benefit. The majority of providers using such systems have identified benefits to learners, but a significant minority have not identified any financial savings. Providers are therefore being cautious about undertaking the financial investment necessary.

Practitioners' skills

Most WBL tutors, assessors and verifiers have good levels of ICT user skills, but a small number of providers have classed over half of their practitioners as beginners. Fewer practitioners have good levels of skills in using technology with learners, with about one in four being classed as beginners in this respect and only one in ten classed as advanced. Practitioners with lower skill levels appear to be concentrated in particular occupational areas, perhaps reflecting the culture of these sectors.

The majority of providers report technology-related skills gaps in their workforce, and the range of skills missing is increasing. However, having clear management accountability for technology reduces the likelihood of providers having skills gaps.

This lack of skills is a major obstacle to providers' effective implementation of technology. and as a result, only half of providers believe their tutors are exploiting technology consistently and effectively.

Impact

Most providers and practitioners agree that technology has had an impact on the efficient management and delivery of learning, and many practitioners highlight specific time savings.

Although providers generally focus on the use of technology to improve business processes and learning management, the majority of providers and practitioners believe technology has improved the quality of learning and learning outcomes as well as the effectiveness of assessment. Practitioners, in particular, also highlight the impact it has had on learner and staff satisfaction.

Some providers are undertaking significant investment in technology, but a lack of capital funding is a significant barrier to providers' future use of it. This funding is likely to be even more difficult to obtain in the current economic climate. A lack of time and skills are further important barriers.

Work-based learning sector system outcome baselines

The *Harnessing Technology: Next Generation Learning* strategy sets out a number of strategic outcomes which will illustrate the success of the strategy. The following tables provide suggested baseline measures for the indicators in each of the outcome areas.

Table 32: Technology-confident effective providers baseline

Indicators	Baselines
1. Providers achieve well on e-maturity criteria.	37% of providers are consider e-mature (approach rated as 'embedded' or 'innovative'). 27% of providers are considered late adopters (approach rated as 'localised' or 'co-ordinated').
2. Provider capability is in place to support home and extended learning.	38% of providers have a computer network accessible remotely by learners. 24% of providers have laptops for loan to learners in the workplace. 18% of providers offer technical support for learners off site. 26% of providers have introduced an integrated learner management system which lets learners manage their evidence portfolios online. 32% of providers have a dedicated website to support learners.
3. Technology-based tools and resources support effective teaching.	50% of providers agree that tutors exploit technology consistently to offer engaging and effective learning experiences. 86% of practitioners rate themselves as competent or advanced in ICT user skills. 76% of practitioners rate themselves as competent or advanced in the use of technology in the classroom or for remote learning. 54% of providers report that technology has improved the quality of learning delivered. 64% of practitioners report that the use of technology has improved learner outcomes either a bit or to a large extent. 39% of providers report that technology has increased achievement.

Table 33: Engaged and empowered learners baseline

Indicators	Baselines

1. Learner entitlement is met with all vulnerable groups supported.	There is a median average of 7.2 work-based learners for every computer available at a WBL provider's premises.
2. Technology adds value to family and informal learning.	None
3. Learners use technology confidently and safely to support their learning.	88% of providers have a written strategy (either as part of a wider strategy or on its own) to ensure technology-related learning environments are safe and secure.

Table 34: Confident system leadership and innovation baseline

Indicators	Baselines
1. Education leaders understand how technology supports their priorities.	84% of providers agree or strongly agree that their senior management team has the appropriate knowledge and skills to make effective use of technology to support work-based learning. 51% of providers have a written strategy (either as part of a wider strategy or on its own) covering all six of the following – how they intend to: • use technology to manage and administer work-based learning more efficiently (76%) • access, develop and use ICT-based WBL resources (73%) • train staff to support and deliver e-learning (68%) • ensure that the use of technology is financially sustainable (73%) • ensure that learners and staff receive appropriate technical support when using technology (86%) • ensure that technology-related learning environments are safe and secure (88%).
2. Partners buy into strategic vision and actively support implementation.	To help them harness technology: • 50% of providers have worked with other WBL providers • 39% of providers have worked with employers • 39% of providers have worked with industry bodies. 16% of providers working with other WBL providers to help harness technology report this work to be effective. 40% of providers have worked with partners

	to develop computer-based learning resources.
3. Innovation encouraged and good practice shared and adopted.	30% of providers have a clear managerial accountability for delivering and updating a coherent technology strategy.

Table 35: Enabling infrastructure and processes baseline

Indicators	Baselines
1. Systems for learner services are fully integrated.	69% of providers agree or strongly agree that tutors, assessors and verifiers are able to share and use information and data effectively for the benefit of learners. 26% of providers have introduced an integrated learner management system which lets learners manage their evidence portfolios online.
2. High-quality, tailored resources are available to all learners.	64% of providers are satisfied or very satisfied that learners have access to appropriate technology. 77% of practitioners are satisfied or very satisfied that they have access to appropriate technology and digital resources. 73% of providers delivering apprenticeship programmes are using computer-based learning resources within these programmes. 78% of providers delivering E2E programmes are using computer-based learning resources within these programmes. 58% of providers delivering Train to Gain programmes are using computer-based learning resources within these programmes.
3. Infrastructure is designed for efficiency and sustainability.	74% of providers report that technology has resulted in more efficient management and administration of learning. 77% of practitioners think that using technology has impacted to a large extent or a bit on increased efficiency in delivery and administration. 48% of providers introducing an integrated learner management system which lets learners manage their evidence portfolios online strongly agree or agree that it has resulted in reduced administrative costs.

	42% of providers developing computer-based learning resources themselves or in partnership report that future income or cost savings will cover the costs of their development. 37% of providers using computer-based learning resources report that they have reduced costs.

Table 36: Improved personalised learning experiences baseline

Indicators	Baselines
1. Learners are able to exercise choice among flexible learning options.	59% of providers report that technology has increased learners' choice of learning methods. 32% of providers report that technology has increased the choice of learning opportunities offered. 78% of practitioners report that technology has allowed greater choice in learning opportunities for learners.
2. Tailored and responsive assessment addresses learners' needs.	53% of providers report that technology has led to more effective assessment of learning. 65% of practitioners report that technology has increased efficiency in assessing learners. 79% of providers use on-screen key skills testing for all or most of their learning programmes. 73% of providers use online testing for all or most of their learning programmes. 19% of providers use online evidence management for all or most of their learning programmes. 81% of providers use technology to help assess the initial skill needs of work-based learners.
3. Engaging learning experiences support deep and higher-order learning.	62% of providers using computer-based learning resources report that they have improved learner outcomes compared with more traditional resources. 63% of providers using computer-based learning resources report that they have improved learner satisfaction compared with more traditional resources.

Further work

This report has built on research conducted with providers over the last three years and with practitioners last year. The results show that there has been little movement on most of the key indicators of e-maturity, which is perhaps not surprising given the investment in time and money required to purchase technology, effectively implement systems and often change culture within the provider workforce. However, the consistency of response provides some confidence that our research methodology is reliable.

We understand that Becta intends to undertake further research to measure progress in the sector over the next two years. As a result of the slow change in most of the indicators we recommend that research over the next year focuses on a small number of issues, supported by more qualitative work, and that the broader survey is repeated in two years' time. The exact focus of the research can be developed over the next few months, but could include investigating:

- why a minority of providers have not developed the skills, knowledge and management processes to effectively manage technology (previous qualitative work has focused on the more e-mature providers)
- why partnership working does not appear to be effective in helping to harness technology and what could be done to improve it
- why providers are cautious about introducing learner management systems
- why computer-based learning resources are not being used more widely
- how a lack of skills is impacting on the effective use of technology by practitioners and on the barriers they face in using technology to deliver learning
- issues associated with capital investment in technology.

We have produced a range of baselines for the *Harness Technology* system outcomes, which provide a first stage in the process. Future work will need to involve:

- narrowing down the range of measures for each indicator
- relating these measures to those being collected in other sectors, to ensure compatibility and collation of measures across the FE and skills sector.

Our measurement of e-maturity in the sector is derived from the draft *E-maturity Framework for Further Education* developed in 2008, which has now evolved into the Generator self-assessment tool. The e-maturity measure therefore needs to be reviewed in the light of this refinement and the measures being used in other parts of the sector.